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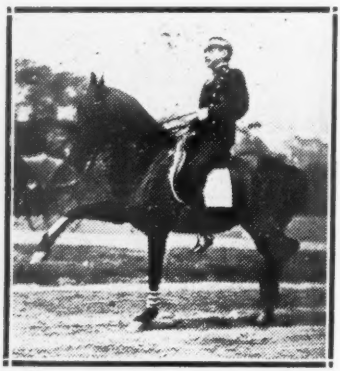

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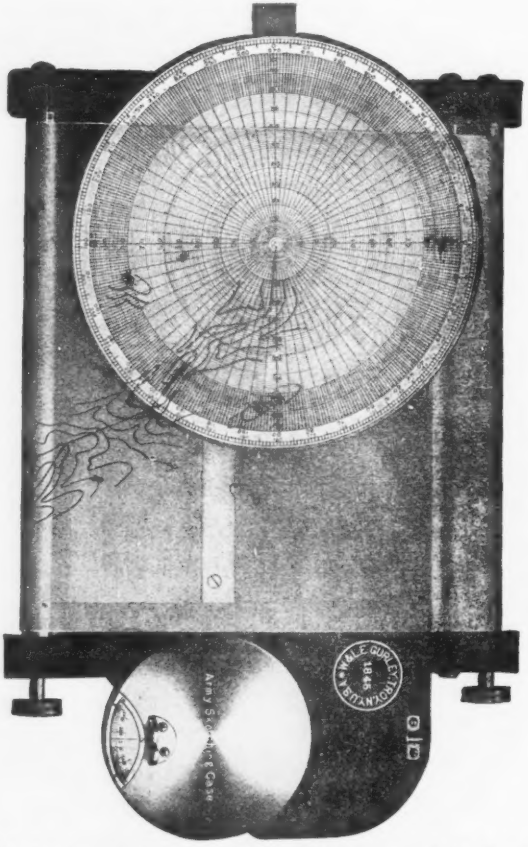

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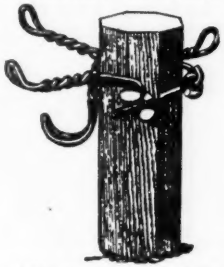

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OUR CAVALRY ORGANIZATION AS VIEWED IN THE LIGHT OF ITS HISTORY AND OF LEGISLATION.

BY CAPTAIN H. R. HICKOK, FIFTEENTH CAVALRY.

In the past year or so much has been said and written on the subject of our cavalry organization and of the needs for its reorganization. All sorts of oganizations have been proposed ranging from those as small as the cavalry regiments in the British service to others more or less similar to our present organization. But most of these suggestions, when reduced to the ultimate reason, point to promotion. Robbed of that feature, many of them would not be advocated. That there is much dissatisfaction in the cavalry service is unquestionable, and most of it is traceable to the inequalities of promotion in the various arms. But any reorganization scheme that is based on the inequities and inequalities of promotion alone, or has these as the moving causes, is not sound. It is the purpose of this paper to present the salient features of the legislation affecting our cavalry service together with certain conclusions to be drawn therefrom.

In the following table is given a synopsis, in parallel columns for the purpose of comparison, of the various principal

legislative features affecting cavalry and infantry organization since the formation of the federal government.

THE VARIOUS ORGANIZATION OF CAVALRY AND INFANTRY REGIMENTS SINCE THE FORMATION OF THE FEDERAL GOVERNMENT DOWN TO THE PRESENT TIME.*

	CAVALRY.		INFANTRY.
		1790	1 Regt. 1 lt. col., 3 majs. 3 bns. 12 cos. each co. 76 en. men.
1792	1 sq. lt. drags. 1 maj. adj. qm. etc., 4 trs. en. men totaling 320. Raised for 3 years only.	1792	5 Regts. all told, each of 960 en. men and the authorized officers.
			Each regt. to consist of 3 bns., except one regt. to have 2 bns. and 1 sq. lt. drags.
1796	2 cos. lt. drags. each of 1 capt. 2 lts. 1 cornet and 63 en. men.		
1798	6 addl. trs. lt. drags. raised, which with the 2 trs. authorized in 1796 formed a regt. of 8 trs. Rgt. officers, 1 lt. col. 2 majs and rgt. staff and n. c. staff.	1798	Rgts. raised to 10 cos. Lt. col. commands. 2 majs., etc.
1799	Rgt. cav. reorganized, to consist of 5 sq. each of 2 cos., officers as before and 930 enlisted men.		
1800	Prov. army disbanded and of cav. only 2 trs. lt. drags. retained.		
1808	1 Regt. lt. drags. organized 8 trs., 1 col. 1 lt. col. 1 maj. rgt. staff, etc. Each tr. 76 men.	1808	Rgts. of 10 cos. Field and staff as drag. regt. each co. 78 men.
1812	6 cos. rangers, each co. 4 off. 68 men.	1812	Rgts. 2 bns. 9 cos. each. Each co. 110 men. Field and staff as for regt. lt. drag.
	1 Regt lt. drags., 2 bns. 6 cos. each, each co. 91 men. Officers, 1 col. 1 lt. col. 2 majs. 1 rgt. staff and n. c. staff.		
1813	addl. maj. authorized. 10 cos. rangers to be raised in lieu of 1 of 20 rgts. inf. authorized this same year.	1813	1 addl. maj. per rgt. authorized.

*Extracted from: U. S. Military Laws 1776–1863, Callan.
Military Laws of the U. S. to 1874. Scott.
Military Laws of the U. S., 1911 rev. McClure.

1814 2 existing rgts. lt. drags. combined into 1 regt. 1 col. 1 lt. col. 2 majs , rgt. staff and n. c. staff, 8 trs. ea. 5 off. and 116 en. men.
(Out of service 6–15–15).

1815 Service reduced to peace establishment. Regt. 1 col. 1 lt. col. 1 maj. rgt. staff and n. c. staff, 10 cos. ea. of 78 en. men.

1821 Rgts. reorganized, ea. to consist of 1 col. 1 lt. col., 1 maj. rgt. staff and n. c. staff, 10 cos. ea. 3 off. and 51 en. men.

1832 1 bn. 600 mtd. rangers, ea. co. 4 off. and 110 en. men.

1833 Rgt. dragoons authorized in lieu bn. mtd. rangers. 1 col. 1 lt. col. 1 maj. rgt. staff and n. c. staff, 10 cos. ea. 3 off. and 71 en. men. (This was known as the 1st dragoons.)

1836 An addl. rgt. dragoons or mtd. riflemen authorized. (The 2d Dragoons.)

1838 Added to every inf. co. 1 sgt. and 38 pvts., total en. per co. 90.

1842 Each co. Drags. reduced to 61 en. men.
2d Dragoons converted into a rgt. riflemen to date 3–4–43.

1844 Repeals act converting 2d Drags. into riflemen, remounts rgt. and gives it title of 2d Drags.

1846 Authorized 1 rgt. mtd. riflemen. 1 col. 1 lt. col. 1 maj. rgt. staff and n. c. staff, 10 cos. each co. 3 off. and 76 en. men.

1847 1 addl. rgt. Drags. authorized for service during war with Mexico.
1 addl. major authorized per rgt. for service during the war. Certain teamsters added per rgt.

1847 1 addl. major per regt. authorized as for cav. Certain teamsters added per rgt.

1850	President authorized to mount any part of army now serving on foot. For cos. on frontier, privates, may be increased to 74 per co.	1850	As for cavalry.
1855	2 Rgts. cav. added to army, to be organized as in the existing forces.	1855	2 Rgts. inf. added to army to be organized as in the existing force.
1858	1 Rgt. Texas Mtd. Vols. authorized for Texas frontier service for 18 mos.: 1 col. 1 lt. col., 1 maj., rgt. staff and n. c. staff, 10 cos. each of 3 off. and 85 en. men. 2 Rgts. 18 mos. vols. authorized for service in Utah, either as mtd. rgts. or inf. and organized as for the Texas Mtd. Vol. Regt.		
1861 (7–22)	500,000 vol. all arms authorized, cavalry in proportion of 1 co. to every regt. inf. and to be organized as in regular service.	1861 (7–22)	Rgt. organization: 1 col. 1 lt. col. rgt. staff and n. c. staff band, 10 cos. ea. of 3 off. and from 80 to 98 men.
7–29	Adds. 1 cav. rgt. (the 6th) to consist of not more than 3 bns. of not more than 2 sq. each, each sq. of 2 cos. ea. 1 col., 1 lt. col. rgt. staff, n. c. staff and band. Each sq. 1 maj. and sq. staff and n. c. staff. Each co. 3 off. and 92 men.	7–29	9 Rgts. added to reg. army. Each rgt. not less than 2 nor more than 3 bns., each bn. 8 cos., each co. of 3 off. and not to exceed 97 en. men. Rgt. and bn. officers as for cavalry. Band authorized. (Officers were appointed for entire rgt., but not more than two bns. of each of these regts. were ever manned, the officers being used on other duties.)
8–3	Different mtd. rgts., now all grouped together and designated "cavalry" and given numerical designation from 1 to 5.		
1862	All cavalry reorganized: each regt. will consist of 1 col. 1 lt. col., 3 majs., staff and n. c. staff, 12 cos. or troops, each troop 4 officers and 100 en. men.		

1863	Grade of supernumerary 2d lt. abolished.		
1866	Adds 4 cav. regts., now 10 all told. Organization as for 1862.	1866	Regular establishment 45 rgts. ea. rgt. to consist of 1 col., 1 lt. col., 1 maj., rgt. staff and n. c. staff, 10 cos. each co. 3 off. and 69 en. men, which may be increased to not to exceed 100.
		1869	Infantry reduced to 25 regiments.
1883	Designation of "company" of cavalry changed to "troop" by Circulars 8 and 9 that year.		
1890	2 troops in each regiment were skeletonized by G. O. 79 and 120 that year.	1890	2 companies in each regiment were skeletonized, as in the cavalry.
1898	Skeletonized troops remanned.	1898	Batalion organization adopted, each regt. to consist of 2 bns. of 4 cos. ea., and of 2 unmanned cos. Upon declaration of war a 3d bn. authorized to be composed of the 2 unmanned cos. now to be manned and of 2 additional cos. This when in final effect made the majors to be 3 per regt. Skeletonized cos. remanned and battalion organization made fully effective.
1899	The regimental organization of 3 squadrons, each of 4 troops adopted.	1899	The regimental organization of 3 battalions of 4 companies each is continued.
1901	5 Regts. cav. added. The present organization, 5 field officers, full regiment and sq. staff and n. c. staff, band and "twelve troops organized into three squadrons of four troops each." Each tr. 3 off. and 65 en. men and may be increased to not to exceed 100 en. men.	1901	5 Rgts. inf. added. The present organization, as for cavalry except substituting battalion and company for squadron and troop, respectively. Each co. 3 off. and 65 en. men, and may be increased to not to exceed 150 en. men.

DRILL REGULATIONS.

Until 1891, drill regulations in our service were designated "tactics." As we understand the term, "tactics" refers to the dispositions for and the methods used in fighting, and not to the manner of drill nor instructions for maneuver.

The following references give an outline of the principal drill-book regimental organizations that have been in use at various times since the formation of our federal government.

CAVALRY DRILL.

1794. "Manual Exercise, and Evolutions of the Cavalry, as Practiced in the late American Army," by Baron von Steuben. The regiment of nine troops was formed into three squadrons, each of three troops; the regiment of eight troops into two squadrons, each of four troops. The major or adjutant exercised the regiment; captains took post with their troops; no mention is made of the colonel or lieutenant colonel; apparently there was no designated commander for each squadron Movements were the simplest, and devoid of detailed description, and went no farther than the regiment. Arms: swords and pistols.

This book also included within its covers the infantry drill, which provided for company and regimental (battalion) formations, the regiment (battalion) consisting of eight companies.

1809. "Modern Tactics," Duane. "The first organized portion of an infantry regiment is a company; that of cavalry a troop. As the infantry is divided into two battalions of four companies, so the cavalry is divided into two squadrons of four troops each, composed of the numbers as above." These tactics provided for mounted action and indicated the necessity for a limited number of carbines for special cases of dismounted action. Sword and pistols were the other arms.

1811. "Abstract of the Instruction for Volunteer Corps of Cavalry," by Colonel Herries of the British service, and based on the British organization and tactics. It was brought out for use by the Philadelphia City Militia Cavalry. In this drill, a regiment consisted of three, four or five squadrons, according to the regimental strength, and each squadron

generally of two troops. The armament indicated was pistols and swords.

1834. "A System of Tactics: or Rules for the Exercise and Maneuvers of the Cavalry and Light Infantry and Riflemen of the United States." This work was also known as the "Scott Tactics." It was submitted in 1826 by a board appointed that year. General Scott and Lieutenant Colonel Zachary Taylor were two of the members of the board. At the date of its report, there was no cavalry in the United States service. It was published the year following the authorization of the 1st Dragoons. Two troops (the legislative troops), companies or divisions, as they were variously called, composed a squadron, and four squadrons a regiment. The squadron was commanded by the senior of the two captains whose troops composed the squadron. The regimental commander was the only field officer who had a command; the others had only supervisory but no active independent duties or commands at drill. Mounted formations were all in double rank. No organization higher than a regiment was discussed. Armament and dismounted action were not discussed in the cavalry section of this book.

1841. "The Poinsett Tactics," so named for the then Secretary of War. These were also called the "1841 Tactics." This drill provided for a five squadron regiment, but the general principles were as in the Scott Tactics. The armament was saber, pistol and carbine. Dismounted action was provided for. The Scott and Poinsett Tactics were those chiefly used during the Civil War.

1861. The Cooke Tactics, devised by General (then Colonel) P. St. George Cooke, were approved and issued to the service. The text provided for the maneuver of the squadron (our troop, not the two-troop unit of the Scott and Poinsett Tactics), the regiment and the brigade. Between the squadron (our troop) and the regiment there was no intermediate unit corresponding to our present squadron. The regimental commander was the only one of the five field officers who had specific directive duties, the others having merely supervisory duties. These tactics provided that two regiments formed a brigade and two brigades a division. The chief differences between

Cooke's and the preceding drill systems are the introduction of mounted single rank formations and the substitution of ten squadrons (our troop) for the four and five-squadron regimental drill of the preceding drill books. The saber and pistol are specifically provided for and the carbine by inference in the instruction for dismounted action.

1873. "United States Tactics, Cavalry: 1873." These were an assimilation of cavalry drill and of infantry drill as laid down in Upton's Tactics. For dismounted work the cavalry drill book prescribed practically an infantry double rank formation. For mounted work the battalion consisted of any number of companies from two to seven, four being considered the normal number. A major commanded the battalion. The regiment was supposed to consist of three battalions of four companies each, but the rules of drill were applicable to a greater or less number of battalions of a greater or less number of companies. The brigade was given as composed of three regiments. The size of the division was not stated. Armament was the saber, pistol and carbine.

1891. "Cavalry Drill Regulations 1891" definitely adopted the four-troop, three-squadron regiment. Armament as in the 1873 drill book.

1896. The Drill Regulations of these years are really develop
1902. ments of the 1891 edition, retaining the same drill
1909. organizations and armament.

INFANTRY DRILL.

1809-1891. Subsequent to the Duane Tactics of 1809, above noted, many books of infantry drill were brought forward. Until 1891, these books all provided for drill by company and by regiment or battalion of eight or ten companies, "battalion" being the maneuver name of the regiment. Between the company and the regiment there was no intermediate drill organization corresponding to the present battalion. The regimental commander was the only field officer exercising active command at drill.

1891. Infantry Drill Regulations of this year definitely adopted for drill and maneuver the four-company, three battalion regiment, which had been adopted by the cavalry in 1873.

1911. The Infantry Drill Regulations of this year continue the previous organizations and make the first mention of the maneuver dispositions of machine guns.

HISTORICAL NARRATIVE.

In the Revolutionary War there were all told four regiments of light dragoons, which passed out of existence at the end of that war. The first cavalry of the present government was raised in 1792 and consisted of one squadron with approximately the same number of officers and organization as an infantry battalion of that time and of our squadron to-day.

The first infantry regiment was authorized in 1790 and, except for having no colonel, was given practically the same legislative organization as our infantry regiments of to-day. If we follow the legislative organizations authorized for cavalry and infantry we will notice that the organizations kept practically the same down to the time of the Civil War. Some new regular regiments were then authorized which had peculiar organizations, but these peculiarities were only short-lived. The masses of troops in the Civil War usually had the organization for infantry of ten companies per regiment.

In 1862, all regular cavalry regiments were made twelve troops strong and were given three majors. The volunteer cavalry was required in 1862 to conform to this organization. The infantry continued the ten-company regimental organization down to 1898, when legislation adopted the modern four-company three-battalion regiment. The four-troop three-squadron regiment was legislatively adopted in 1899.

Steuben's Tactics, which were our earliest cavalry drill regulations, made no mention of dismounted action. Duane's Tactics followed a few years later and showed the necessity for such action. The mounted rangers authorized in the early part of the nineteenth century were really mounted infantry. The necessity for having a permanent mounted force finally produced the 1st Dragoons, and later other cavalry regiments, all of which were trained for both mounted and dismounted action, and some fought entirely dismounted and without horses through entire campaigns.

Besides the regular and volunteer organizations noted, for the frequent Indian and other wars there were various volunteer forces raised, but these had no permanent effect on organization.

In 1906, a provisional organization of a machine gun platoon was created by War Department orders for each regiment of cavalry and infantry. Congress has not yet recognized these as legislative organizations by the enactment of the appropriate statute, and they may at any time be abolished or changed by War Department order.

Our cavalry started out in the Revolution with no traditions and adopted the European light dragoon as its model. In the course of a few years, the necessity of using cavalry for dismounted service was indicated both by legislation and by the drill books. The cavalry then broke away from the European organization and took the infantry organization. For maneuver and field duties the cavalry took the four-troop three-squadron regimental organization eighteen years before it was adopted by the infantry.

By comparing the above cited legislative extracts with those from the drill books, certain facts are noticed and others may be deduced, among which are the following:

The legislative and drill-book organizations frequently did not coincide. The fighting was done by the organizations prescribed in the drill books. The drill-book organizations are tactical matters properly left to executive discretion.

The Scott and Poinsett tactics were practically the French cavalry drill of that period and called for a maneuver organization—the four or five-squadron regiment—which is the usual European cavalry regiment of today. The drill of the civil War was done first with ten and then with the twelve legislative troops that exist today. The double rank formation was rendered necessary by the employment of large cavalry masses and may again be resorted to, should large masses be brought together. Notwithstanding our Civil War experiences, the drill organizations and maneuvers of the Scott and Poinsett tactics were dropped.

Cooke's Tactics of 1861 were not found suitable in handling large cavalry masses and were not generally used. They

had their influence on the assimilated tactics of 1873. Indian warfare required different formations from those of civilized war and the single rank was more flexible for that service.

The 1873 Cavalry Tactics adopted the regimental drill organization of the three squadrons, each squadron of four companies. This was a practical adaptation of the drill of the three-battalion infantry regiment which had already been adopted in Europe, but was not adopted by our infantry until 1891. The Cavalry Drill Regulations of 1891 give a more positive declaration of the four-troop three-squadron regiment. This organization, except for the fact that the war strength of an infantry company may be larger, is also the present day infantry organization. By executive act, machine guns have been added to all regiments, both of cavalry and infantry, but that has not changed the legislative organization nor the drill of the regiment. Today the legislative organization of cavalry and infantry regiments are the same.

Accordingly we see that legislation during the greater part of our national existence has given to cavalry practically the same organization as infantry. This similarity is also reinforced by other legislative enactments, of which the following are quoted:

1792. ".....and it shall be a condition in the enlistment of said dragoons to serve as dismounted dragoons whenever they shall be ordered thereto."

1796. The legislation of this year authorized "two companies of light dragoons who shall do duty on horse or foot, at the discretion of the President of the United States."

1812. Legislation authorized for frontier service "six companies of rangers, to serve either mounted or dismounted, to be armed, equipped and organized in such manner and under such regulations as the President directs."

1833. The statute authorizing the formation of the 1st Dragoons provided that "Said regiment of dragoons shall be liable to serve on horse or foot, as the President may direct."

1858. Legislation reads: "The President is authorized to receive into the United States service not exceeding two regiments of volunteers for eighteen months for service in Utah, either as mounted regiments or infantry."

1866. Legislation of this year, which is still in force, reads "Any portion of the cavalry force may be armed and drilled as infantry or d'smounted cavalry at the discretion of the President."

It will also be noticed that after each war the military force was reduced, either by cutting off certain organizations or by reducing the strength per organization. Following these precedents, Congress will probably further reduce, both in number of regiments and in their size, any small regimental organizations that may be proposed.

In our present legislative organization our squadron is a small European regiment and our regiment is a small European brigade. On a peace footing the difference is more marked than when at war strength. In war, our regiments will, if the Civil War be taken as a precedent, be liable to fall off in strength so that the regiment will be no stronger than a large or war strength squadron.

Our present organization, first legislatively authorized in 1899, was reaffirmed in 1901, eleven years ago. There was no attempt made then to change our organization to the small European regiment and the conditions affecting then existing organizations have not since changed. The growth of the sentiment for a small cavalry regiment may be said to date from the introduction into our service about eight years ago of numerous German text books. Outside of a very few persons in our cavalry, the small cavalry regiment may be favored by some officers of other arms who, disregarding the combined composition and strength of our regular and militia forces forming our first line, our traditional cavalry tactics, the nature of the warfare in which we will probably engage, the character of the terrain in the probable theater, and the strategic considerations involved, would organize our regular cavalry in peace on the basis and proportions to the regular infantry of the European armies at war strength.

Concerning cavalry types, Colonel Wagner wrote in 1894:*

"The dragoon is essentially the cavalryman of the present day, and the American cavalryman of 1864–5 is the type to which all European mounted troops are more or less reluctantly, or perhaps more or less unconsciously, approaching. A cavalry is now demanded which can seize the transient op-

*Organization and Tactics, pp. 57–8.

portunities of charging with the saber, can fight sturdily on foot,and can operate independently. All this the American cavalry could do, and did do, in the War of Secession."

The recent writings of many Europeans, the latest being General von Bernhardi of the German service, confirm this view. This view is also borne out by the following extracts from a report to the War Department of Captain E. N. Scott, *Fifth Field Artillery*, dated December 8, 1911, on his personal observations of maneuvers in the German army in September, 1911:

"Its (cavalry) officers are better, its enlisted men not so well mounted as ours,.....all have the same organization and carry the lance, saber and carbine. Pistols are to be issued in war. The soldier does not ride as well as ours, but his horse is trained to the gentleness of a 'doctor's nag.'

"Great attention was paid to patrol work and apparently none to spectacular attempts. The infantry were not slow to say that the cavalry are really mounted infantry,—the cavalry say they are superior to mounted infantry, but admit that they depend more than ever on dismounted fire action. The tendency in this direction was well shown September —. The Red cavalry division got on the flank of the Blue right column, unobserved, and attacked from less than 1,000 yards with eighteen guns and ten dismounted squadrons. The remaining five squadrons remained mounted as a reserve. It was a complete surprise to the Blues. A better opportunity for a mounted attack could not be desired. However, the attack as carried out was fully approved by higher authorities. Some hours later this division found itself on the flank of the victorious Blues, who were on the point of carrying the Red position. It looked like the psychological moment one reads about, and there seemed nothing to prevent, but again ten squadrons dismounted and advanced to the attack. The halt was sounded before their attack was well organized, and the exercise ended. Not much doubt as to the conduct of the German cavalry in the next war.

"There is no question that the German cavalry ideas have undergone a great change in the past few years, and it is worthy of note that the conduct of American cavalry in the Civil War is receiving a great deal of attention."

ARMAMENT.

Under the drill book citations made above is given the armament assumed in these books. During the Mexican war the dragoons were armed with musketoons, Prussian sabers, and horse pistols. The mounted rifles were armed with percussion rifles and Colt's army revolvers. The cavalry regiments were during the period just before the Civil War armed with sabers, rifle—carbines, and Colt's navy revolvers. During the Civil

War the cavalry was generally armed with rifles or carbines, sabers and revolvers. There was only one lancer regiment in the Civil War, the Sixth Pennsylvania, and that changed the lance for the saber in 1863.*

Concerning the use of the lance in the Mexican War, we read:†

"With the lance they (the Mexicans) were greatly our superiors, and used that weapon with great effect both at Buena Vista and at San Pascual. We have yet to make good lancers in the United States, as experiments, even on a small scale, have proved failures among Americans."

DEDUCTIONS.

The organizations created by legislation, although based on the recommendations and testimony of military experts, are usually adjusted to meet political conditions. Hence, while the organizations may not fully measure up to the best military views of their respective times, they indicate the general nature of those views.

Although the drill books of the Civil War, when our principal cavalry traditions were created, provided for maneuver with organizations similar to those of the European cavalry, our cavalry, even while using that drill, was reorganized and given the organization of twelve troops with three majors per regiment, which organization led directly to our present four-troop three-squadron regiment.

Excepting possibly the temporary force created in 1799, there never has been a legislative organization in our service similar to the typical cavalry regiments of Europe.

The armament indicates the nature of the duties. Starting out with the European light cavalry armament, we soon changed to that of dragoons. Our cavalry definitely rejected the lance. In other words, the sentiment of our service is opposed to pure cavalry of the European type.

The European cavalry is little by little adopting our tactics; but European countries are so hedged about by their historic traditions, and economical considerations being so weighty with them, it is difficult to forsee to what extent they may change their organization. Under these circumstances

*Cavalry Tactics as illustrated by the War of the Rebellion, Gray, pp.7–8.
†History of the U. S. Cavalry, Brackett, p. 83.

it would be unwise even to suggest that we adopt their cavalry organization.

CONCLUSION.

As most cava'ry officers are or should be well acquainted with the history of our cavalry and of the tactics it has used, these matters will not be further discussed at length in this paper. But, an analytical examination of history will show that our cavalry possesses the following methods of fighting:*

"1. The mounted charge, alone, or supported by artillery or by dismounted fire action, or both.

"2. Dismounted fire action, offensive or defensive, alone or in combination with artillery.

"3. Mounted fire action in exceptional cases."

4. In a dismounted campaign, the tactics of infantry.

In other words, we are dragoons, not cavalry of the European traditional type, and our organization should be that which gives greatest efficiency for both mounted and dismounted service. Our present organization is a development and growth of over a century and should not be changed until the necessity therefore becomes apparent.

In summation, I can do no better than repeat what I have elsewhere said:

"It will be further observed that our cavalry holds strongly to the principles of dismounted fighting. This is an essential difference between our cavalry and that of the rest of the world. Our cavalry has always been trained for mounted combat, but during the Civil War and in partisan and border warfare, before and since, dismounted fighting has been an essential feature of our fighting tactics. It is, therefore, traditionally impossible for us to adopt any organization that does not give great prominence and consideration to dismounted fighting, and we are not prepared to adopt the European organization, which is founded on the organization of Frederick the Great and has practically no traditions which are not those of mounted combat."†

*F. S. R. 269.

†Cavalry Reorganization, Journal of the U. S. Cavalry Association, September, 1911, pp. 268–9.

REDUCING THE CAVALRY OF THE REGULAR ARMY.

By Major A. L. DADE, Ninth Cavalry.

The House of Representatives propose to lop off a third (five regiments) of the cavalry of the regular army under the grave misapprehension that it has become useless, is superfluous and an unnecessary burden on the country in the way of expense.

While laudable efforts to reduce the enormous expenditures of the Government will meet with general approval, those who are aware of the disastrous consequences that must inevitably follow such ill-considered action cannot but deplore the unfortunate choice of means to that end in the particular instance.

There are other methods of reducing the expense of the military establishment without touching its personnel or its pay. Those who are in it and of it see many ways by which large economies may be effected. It is unnecessary to touch upon them here farther than to say that such means are properly a part of a definite military policy,—which is now and always has been the crying need of our service,—and are not to be brought about by piece meal legislation which has been the bane of the Army. Such a policy should be inaugurated by the creation of the proposed Council of National Defence. We will then quickly have a definite object in view and all legislation touching the military establishment will conform to that object.

Such a policy has been prepared and is believed to be ready for the consideration of the Council upon its creation by the Congress. Such a system was followed in the creation of the Endicott Board (so-called) under Mr. Cleveland. The labors of this board extended over many years and though its personnel changed from time to time, it adhered to a fixed

general policy. The result is shown in our system of coast defences which is a monument not only to the board but to the excellent system under which it worked.

An impression seems to exist among certain members of the House, including Mr. Hay, the chairman of the Military Committee, that changed conditions of warfare have so modified the functions of Cavalry that less of it will be needed with armies in the future than was required in the past. Nothing could be farther from the case. On the contrary, it is a fact, that following every great war for the past seventy-five years, both victor and vanquished have bent every energy towards increasing the size and effectiveness of their cavalry forces. This is true of both Russia and Japan in the far east. So keenly has Japan felt her deficiences in good Cavalry that with a depleted treasury and taxes piled to the limit, she has, nevertheless, set aside thirty million yen—fifteen million dollars—for the establishment of Government breeding farms for Cavalry horses. The next war will find her former deficiences fully remedied. There is little place for the horse in the economic life of the Japanese. The Government wants Cavalry horses and nothing else and that is what they are breeding, as is known from officers who have visited and inspected their breeding stations in the past six months.

It is also a fact that the amount of Cavalry maintained by European countries is limited by expense rather than by other considerations. They maintain with the colors the minimum to meet their needs, but it must be remembered that they have large reserves of trained men available at a moments call to supplement losses and increase the force, while we having nothing of the kind must always create anew after the emergency is upon us.

Up to 1901 our own cavalry consisted of ten regiments only. Its increase then to fifteen was directly the result of our experiences for the preceding three years.

Should it be necessary for us to enter Mexico or Cuba and there wage the guerrilla warfare peculiar to those peoples, a much larger force of mounted men than we now possess would be necessary to bring it to a successful conclusion. Every so-called insurgent in Northern Mexico today is a mounted man.

The assertion is made without fear of contradiction, that not one, among the great number of military writers of accepted authority, maintains that cavalry has lost one whit of its importance numerically or otherwise as a component part of armies. On the contrary all maintain that while its role on the actual field of battle may have undergone slight modification it has broadened in other directions until on the whole its importance has increased.

Be it remembered that our cavalryman is just as effective with his rifle on foot as the infantryman. If this fact needed demonstration we might point to the Cavalry Division of the Fifth Army Corps at Santiago which went to Cuba dismounted, were assigned their sector of attack on the Spanish position and carried it as their infantry brothers carried those assigned to them.

If we are to follow the maxim of the Great Forrest—"Git thar fust with the most men"—we can do no better than put all our men on horses, as he did, make horsemen of them—Cavalrymen,—then we cannot only "git thar fust" but we "git thar" fresh and ready to do the work required.

President McKinley in his 1901 message to Congress, said: "The American cavalryman trained to maneuver and fight with equal facility on foot and on horseback is the best type of soldier for general purposes now to be found in the world. The ideal cavalryman of the present day is a man who can fight on foot as effectively as the best infantryman and who is, in addition, unsurpassed in the care and management of his horse and in his ability to fight on horseback."

This is the type of fighting man that the Hay amendment proposes to eliminate as no longer of military use. It proposes the wiping out of that which has been years in the making and which once destroyed will require years to create anew. The fine well trained experienced non-commissioned officers and men of these five splendid cavalry regiments cease at once to perpetuate themselves by training up successive generations of the same kind and their like can be obtained again only after years of such work as has made these regiments the effective fighting units they now are.

To quote from a distinguished cavalry officer of the Civil War, General William W. Averill: "The amount of patient and persistent hard work required to convert 1,200 untrained citizens unaccustomed to the care of a horse or his use under the saddle and wholly unexperienced in the use of arms into the *semblance* of a cavalry regiment in six months is known only to those who have done it."

The writer finds ready confirmation of these words out of his own experience for he became a captain of a troop in one of the new regiments created by the Act of February 2, 1901. With two excellent and experienced lieutenants for his assistants he labored day and night for upwards of two years before he felt that he had a troop of cavalry worthy of that name. Indeed it was much longer than two years before the reliable and experienced non-commissioned officers and men, the back bone of every efficient organization, were to be found in these new regiments in sufficient numbers to make them the equals in efficiency of the old.

The army today is barely adequate in size to meet the demands upon it and at the same time these demands are increasing. A garrison must be provided for Hawaii; another for the Canal Zone; American troops are once more in China; Mexico is turbulent, Cuba is restless.

Our efforts last year at assembling a division in Texas might well have caused military men the world over to smile. By stripping our garrisons throughout the country we were able to bring together at San Antonio but little more than half a division in numbers. The mobile army within the territorial limits of the United States is less in numbers today than it was at the outbreak of the war with Spain.

The country cannot afford to give up a single soldier, least of all a single cavalry soldier. Our people are no longer riders of horses. The cowboy has almost ceased to be a feature of the western plains. We have no considerable class of horsemen in any section from which to draw recruits for the mounted branches.

Our militia cavalry is composed of the finest class of men but the difficulties under which they labor in the matter of horses are such that if called into the service of the General

Government and supplied with mounts (necessarily largely or wholly untrained) it would be months before they could reasonably be expected to perform any but the simplest duties of their arm.

The writer has practiced and studied the profession of Arms for almost thirty years. Every improvement in weapons, every new discovery bearing upon warfare during that time has been hailed by the laity (and occasionally by individuals of the profession gifted with more enthusiasm than judgment), as revolutionary and yet the game goes on in the same old way as played by Alexander, Hannibal, Cæsar, Napoleon, Lee, Grant, VonMoltke and Oyama.

Warfare takes the new thing makes use of it, assimilates it we may say, then goes on in its same old course, undisturbed —not a principle changed—not a single function of any arm more than slightly modified.

Improved means of communication meet the increased extent of battlefields; the increased effectiveness and rapidity of fire arms are met by taking greater advantage of the natural cover which the terrain always affords and by the construction of artificial cover when time permits. Cavalry no longer expects to make frontal charges against unshaken infantry on the battlefield, except where a sacrifice may be demanded, but watches for its opportunity to catch them unawares from a flank or when broken or shattered by the fire of its own infantry or when out of ammunition and so on, and then with pistol and saber as of old it reaps its riches harvest. Not a principle has been changed. The Japanese and Russian repeatedly crossed bayonets or yielded in the face of an actual or impending bayonet charge. Clubbed rifles, sticks and stones were used alike on the battlefields of our civil War and Manchuria. Even the hand grenade has returned to its own. Not only did the Japanese and Russians make large use of it, but both of these nations maintain and train their grenadiers.

The areoplane may become an adjunct, indeed has already become one, but no military man can see in it more than an adjunct—and least of all a substitute for anything that armies have always found necessary. Cavalry will, in common with its sister arms, still be called upon to perform in the

identical way, the same functions that it performed under Stuart, Buford, Sheridan and Wheeler.

And let us not forget that the American cavalryman is peculiarly a home product. He is the linial descendent of the troopers who followed these renowned leaders. His training, his armament, his fighting methods are all fashioned after the models they furnished. These are the men—more than four thousand of them—that Mr. Hays thinks the army can get along just as well without.

Let any military student but look over the map of Mukden and picture to himself what Oyama would have given for even twenty-five thousand cavalry such as Sheridan commanded in the Appomattax campaign. His conviction must be that a Kingdom would have been but a fair exchange for such a body of horsemen.

The text and reference books used at our service schools as well as those authorized for the service at large for all arms of the service, contain no hint or suggestion that cavalry has lost in importance; indeed the most profound students of the military art will be found always the most ready to insist that its uses have broadened and increased rather than diminished.

We need an army. The country wants one—and it ought to have the best, man for man, in the world. We have regiments of infantry, cavalry, and field artillery and battalions and other units of special troops but no unit higher than a regiment; not a brigade or division. We have as it were the individuals but not the team; the parts of the machine, but scattered and disjointed.

We have maintained an army, so-called, of some kind throughout our national history. Though reduced to almost nothing on occasions the necessity for its re-establishment has always been quickly forthcoming and the unwisdom of its reduction quickly demonstrated.

That we will continue to maintain one indefinitely no thinking man can deny. Indeed, it is safe to predict that so long as courts and juries, sheriffs, constables and policemen are necessary to enforce the law and protect life and property, just so long will states find it necessary to maintain armies of some kind. We may come to the Swiss plan as advocated by Mr.

Berger but that is so nearly like conscription, so repugnant to our liberty loving people, that it may be safely set down as too remote for present consideration.

Let our Congress then turn its attention towards providing the country with a real army, properly organized and economically administered. This great public service is not to be accomplished by haphazard means. Let it be commenced at once by providing for a Council of National Defence; this in turn to be followed by a reasonable military policy. Only by such orderly methods may we hope to ever have an army in fact as well as in name.

WATERING THE HEATED HORSE.

By WILLIAM P. HILL, Veterinarian First Field Artillery.

THERE are certain things concerning the horse that have been handed down to us from our great grandfathers and which we have accepted to be "*gospel truth*" without once stopping to think whether they were really a fact or not?

One of these is, "*never water a hot horse:*" or "*only give him a swallow or two,*" and then later give him what he will drink. This is the hard and fast law that we as horsemen have been brought to believe from the experience of our teachers whose theory we have accepted without a doubt.

The idea of letting a horse that is hot have all the water he wants seems to the average horseman madness, and the heighth of ignorance, simply because he has had it instilled into him that it is almost sure to ruin, if not kill the animal. Is this really a fact? Does the water produce laminitis, colic, congestion of the lungs or any other disease? Perhaps it is not the water but *the temperature* of the water that does it?

Here is the keynote to the whole question, and because dire results have undoubtedly often followed from giving a hot horse large draughts of *cold* water, the unfortunate hot horse is consequently restricted from having what water he wishes when he craves it, and it is what his system especially needs at that time, to restore the healthy balance and condition of the blood which has been depleted by excessive sweating.

What I mean by *cold* water must here be understood; water that comes from faucets in winter weather; streams that have ice on them, or that the teperature is really, chilly in a word I call it too cold for a horse if below 70° F, but the water

of rivers and of streams, and the troughs in the corrals of army stables in the summer time, I claim is absolutely harmless to the hot horse, but on the contrary beneficial.

For Example: According to the usual custom, say, in the month of July, you take a horse out and give him enough exercise to make him sweat freely, he comes in hot and lathered up, you rub him down and stand him in the stable for an hour or so, then take him out to the water trough and let him have his fill of water, after he has cooled off. You feel as if you had done the right thing, but let me say right here that you have done exactly the wrong thing. Your horse has lost by the exercise say three to six quarts of liquids from the skin, lungs and bowels. These several organs are depleted this much from their normal balance. The blood requires that the loss of liquid be restored to it to regain its normal consistency. The horse's body is hot, and this heat can be used to bring the water to a more normal temperature for absorption but no, you perhaps give him a swallow or two, and no more, or often, none at all; tie him up for an hour or so, and then when he has cooled off or rather when he has become chilled from re-action, you take him out and give him all the water he wants; Does this sound sensible?

Water that has no *chill* to it is surely harmless. It is natures restorative, and the principle constituent of the body. Why not let him have it? We are told to wait until he gets cooled off. Then he is already chilled, and we pour him full and give him a further chill; *this* is what produces the resultant diseases.

Let him have what water he wants when he is hot, only don't let him have *too cold water*; this is all you have to guard against. In the summer time, the time when we have the hot horses, the water available is usually of the proper temperature. It will never cause any trouble if it is not really cold. If I have shown that water is harmless to a hot horse, why not in the winter time, when we have few heated horses, add enough hot water to a bucket of cold water and then let them have it, rather than stint them of the very thing they at that moment most need and desire.

The practice of walking a horse after letting him drink, is, I think, useless, as long as the water is not chilly. It is the *cold* water that makes this advisable or necessary.

I have been so convinced of the fallacy of witholding water from the hot horse that for the last two years I have been letting all in my care have all the trough or river water that they will drink on coming in from drill or practice marches. I have repeatedly watered my own horses, when white with sweat, and have yet to produce laminitis or any other disturbance. When one sees a horse in the morning with laminitis or congestion of the lungs, the first question asked is: Did you bring him in hot? Did you water him immediately? If answered in the affirmative, it is at once laid to the water.

Have you ever stopped to think of the other causes of laminitis or congestion of the lungs or perhaps colic? Is water the principal cause of these diseases? Could not some other cause have produced it? There are dozens of other likely causes far out stripping in possibility the water, but yet we swallow the water theory hook, bait and all, without stopping to consider the pros and cons, simply because it has been so thoroughly grounded into us.

Man drinks as much water as he cares for after severe exercises, and often ice water at that. Do you think he could ever hurt himself by drinking from the faucet water in the summer time? Then why does it hurt the horse? Some may answer, because the horse has no sense in regard to the limitations of his food and water. I have yet to see a horse drink enough water of *proper temperature* to be able to say positively that it was the cause of consequent disease, or injury.

All the troubles are caused by the *coldness* of the water or by many of the other likely causes that produce disease after excessive exercise.

How often we see horses in the army brought in hot and tied on the picket lines until cooled off. They may have come in from a long dusty march, and may not have passed a stream where they could be conveniently watered for per-

haps the last five miles or more. They are all craving water, but are considered too hot and have to wait. Is this right?

In March, of this year, the First Battalion, First Field Artillery marched from Fort William McKinley to Camp Stotsenburg. The heat was excessive and the dust in such clouds that only artillery can really stir up. These 388 horses were watered immediately on reaching camp and it is certain that they were heated. I did not treat a horse for laminitis or colic on the trip. This method of watering was first brought to my attention by a small book written by Mr. Caulton Reeks, F. R. C. V. S., entitled, "The Common Colics of the Horse." He is considered one of the best Veterinary authorities on the horse in England to day and I earnestly advise all officers who have not read it to obtain a copy.

DAILY DIARY OF EQUITATION WORK AT THE MOUNTED SERVICE SCHOOL.

FEBRUARY AND MARCH, 1912.

TRAINING CLASS.

Schedule February 1st to February 8th—one hour per day.

1. In hall: Work out. Canter at will on both hands, turning small circles in the corners. Work at will 15 minutes. Individually, lateral flexion left on left hand and lateral flexion right on right hand at the slow trot.
2. In hall: Work out at trot. Canter and slow trot alternating on both hands. Work at will 15 minutes. Individually, down center of hall at a slow trot with swing of haunches to right, straighten and swing haunches to left. "Haunches In" on both hands at walk and slow trot.
3. In hall: Work out. Work at will. Drill through the exercises which have been taken up so far.
5. In hall: Work out at trot. Canter at will on left hand. Work at will. Individually, down center of hall at slow trot swinging haunches to right and left. "Haunches In" on both hands. Canter in column on right hand, by the flank in line, and by threes down center of hall. On right nto line, horses stand at attention, dismount and mount on right side.
6. In hall: Same as 5th except canter in column was to left. Individually, haunches right on left hand, haunches left on right hand. From head of column, trot, slow trot, school trot and canter to rear of column.
7. In hall: Work out. Canter at will on right hand. Work at will 15 minutes. Individually, haunches in and haunches out on both hands.
8. No riding on account of examination.

Schedule February 9th to March 30th—1½ hours per day.

9. In hall: Work out. Canter at will to right. Work at will 15 minutes. Drill at canter to left. Outdoors for 40 minutes.
10. In hall: Work at will on both hands. Drill in platoons. All colts in this class arranged in line in order of their progress.
12. In hall. Work out. Canter at will to right. Drill in canter to left. Work at will 20 minutes. Individually haunches out.
13. In hall: Work out. Drill at canter by platoons. Work at will 20 minutes. Drill at slow trot. Individually "Fore hand in", (out).
14. In hall: Same as 13th. In addition from the head of the column each rider slow trot, canter left lead, slow trot, canter right lead.
15. In hall: Same as 14th, and in addition individually fiigures of 8 at slow trot.
16. Outdoors: For road work.
17. In hall: Work out. Drill at canter by platoons. Drill by threes in center of hall. Work at will 15 minutes. Individually, slow trot, canter right lead, slow trot, canter left lead.
19. In hall: Work out. Canter by platoons, circles in the end of the hall. Drill in center by threes at slow trot, right and left abouts, on forehand to right and left, by the flank, halts, etc. Individually, forehand out on right hand; haunches right on left hand and haunches left on right hand.
20. In hall: Work out. Work at will 15 minutes. Drill in column at slow trot, haunches right and left, two tracks right and left oblique, individual circles. Individually, down center, swinging forehand to right and left. Canter on circles alternating with slow trot.
21. In hall. Same as 20th, except practice in taking alternate leads at canter from slow trot on straight line. Also jumping a very low brush hurdle.
22. Outdoors: For road work.
23. In hall: Work out. Drill by threes in the center at slow trot, right and left abouts, turns by flank, halts, on forehand to right and left. Move at will 20 minutes jumping low brush hurdle.

24. The schedule for this date was transferred to 22d instant.

26. In hall: Work out. Drill by platoons at slow trot. Work at will 20 minutes. Special work for most backward colts. Jumping low brush hurdle.

27. In hall: Work out. Drill through exercises at slow trot. Work at will 15 minutes. Individually, canter on circle, change circles at slow trot and canter on other circle, both leads true. Two jumps over low brush hurdles.

28. In hall: Work out. Work at will 20 minutes. Individiually, haunches in. Canter on circles. Two jumps over low brush hurdle.

29 In hall: Work at will. Individually, collected walk, and school trot; haunches out. Cantering on circles on both hands. Two jumps over low brush hurdle at canter.*

March.

1. In hall: Work out. Work at will. Individually, collected walk and school trot at straight line in center of hall.

   One platoon at a time on the track, canter at will turning small circles at the ends of the hall. Jumping low brush and bar jumps mounted.

2. In hall: Work out. Canter as for 1st. Drill by threes in center, haunches right and left, two tracks right and left oblique, halts, turns to the forehand, right and left abouts. Individually, figure eight at school trot. Jumping low brush.

4. In hall: 2d platoon in A. M. work out at trot and canter. Drill in two-track work. In P. M. 1st platoon exhibition for Kansas State Agricultural College students showing work done by class to date.

5. In hall: Drill by threes in center. Individually, school canter. Jumping small brush.

6. In hall: Work at will. Drill by threes at a canter. Individually, haunches in, straighten and haunches out at school trot. Cantered over low bar.

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*NOTE.—During this month the weather was so bad that but little outside road work could be done. The colts began to get a little sour on the inside work, and constant application of the aids so that the work had to be relaxed to a certain extent. Considerable cantering was allowed and the little jumping, which they seemed to relish, appeared to relieve the situation.

7. In hall: Drill at trot and slow trot. Individually, collected walk, school trot, and down center two-tracks right and left oblique, haunches right and left. Jumped low bar.
8. In hall: Long trot on both hands. Drill in one track movements. Individually, school trot and small circles at school canter.
9. In hall: At end of work out, short extended trot, canter right and individually on circles. Canter left, first trooper front to rear. Slow trot, rear trooper on small circle as called. Individually, down center from school trot, canter right, then school trot canter left, school trot canter right. Jumping low bar.
11. In hall: Work by threes, serpentine and canter left on track. Individually, school trot canter left, school trot canter right, school trot canter left. Jumping bales of hay.
12. In hall: Drill by threes at trot. Canter by platoons and first trooper front to rear. Individually taking the gallop from slow trot. Jumping low brush.
13. In hall: Drill by threes at a trot on both hands, canter on both hands, first trooper front to rear. Individually a half turn on the haunches at a school trot. Jumping low brush at a canter.
14 In hall: Work out at canter on both hands. Individually, half turn on the haunches. Jumping low brush.
15. In hall: Canter by threes down the center. Individually, figure eight on the haunches at school trot.
16. In hall: Drill at canter. Drill at school trot in the exercises. Individually, figure eight on the haunches. Jumping in pairs, tandem and abreast over jump made up of bales of hay.
18. In hall: Work out. Outside for road work. At a walk, over low brush in pairs, tandem and abreast.
19. Outside: Road work at a walk.
20. In hall: Work at will. Individually, forehand in at a school trot. Jumping in pairs, tandem and abreast.
21. In hall: Gaiting at four mile walk. Trot by threes. Canter on track at extended distances and gallop on loose rein, jumping low frame jump.
22. In hall: Work out at trot and canter. Outside. Road work.

23. In hall: Work out at trot by threes. Drill by platoons in the exercises. Gallop by threes. Individually, figure eight on the haunches. Standing horses at attention.

25. Outside 1 hour: Road work at walk. In hall: ½ hour. Canter, first trooper front to rear, canter in pairs tandem from the head of the column twice around the hall. Individually, school trot, canter left, school trot, canter right down the center of hall.

26. Outside 1 hour: Road work at walk. Inside ½ hour: School trot, canter right, school trot, canter left down center of hall. Jumping low bars.

27. In hall: Gaiting at eight mile trot. Individually, down center at school trot, haunches right, straighten, haunches left, straighten, two tracks right (or left) oblique and change, crossing the center line coming back to it by another change on two tracks.

28. In hall: Gaiting at eight mile trot. Individually, down center at school trot, haunches in, straighten, forehand out, straighten. Outside ¾ hour, jumping logs and wading streams up to stifles in depth.

29. In hall ¾ hour: Gaiting at eight mile trot.
Outside ¾ hour: Road work, going through woods and jumping logs and low hurdles.

30. In hall: Gaiting at twelve mile gallop. Individually, down the center, school trot taking canter three times, altering leads from school trot.
Outside ¾ hour: Canter on flats 1¼ miles.

SCHOOLED CLASS.

Schedule February 1st to 8th—1 hour per day.

1. In hall: Quiet work, small abouts, and taking the gallop. Talk by Senior Instructor on instruction in general. Horses put through jumping chute.

2. In hall: Review of the first, except that all jumps were taken with rider up. Also practice in taking true lead at the gallop, and changing hands at the trot and taking the new lead at the gallop.

3. In hall: Same as the second.

5. In hall: Long work out at the trot and gallop during which abouts on large and small arcs were practiced. Work at will practicing halting from the walk and resuming the walk, backing a few steps at a time and

obtaining the collection and suppling of the horse. Turning on the forehand not to exceed 90 degrees. Put horses through jumping chute several times without riders, jumps 3 ft. high.

6. In hall: Long work out at trot and gallop. Individually, riding at slow trot on circles and figures eight around stakes, this to require the accurate control of the horse, and the acurate application of the aids.
7. In hall: Same as the 6th.

Schedule February 9th to March 31st—1½ hours per day.

9. In hall: Quiet work out at the trot. Then troopers individually required to ride horses on two tracks right (left) oblique between designated points. Horses jumped through chute with rider, two low jumps used.
10. In hall: Work out a trot and gallop, circles, spirals, figure eights, etc. Individually, practicing "forehand in." Individually, practicing riding on straight line between marked points and on two tracks right, (left) oblique between marked points, this at the slow trot.
12. In hall: Long trot at will, spirals and work by threes at trot and gallop. Practice in leaving column and riding on straight lines at trot and canter, care being exercised to keep the horses perfectly quiet. Horses without riders put through jumping chute with two three-foot jumps.
13. In hall: Usual work out. Work by threes, by flank, abouts, halting, and two tracks. Collected canter and slow trot on straight line up and down hall. Jumping small jumps in column of troopers with long distances so as to get timid horses to follow other horses and jump boldly.
14. Same as 13th except jumping done individually.
15. In hall: Usual work out. Exercises by abouts and by threes. A little two-track work. Special attention to individuals riding horses on circles around stakes at canter.

    The proper set, cadence and collection of the horse being sought.
16. In hall: Quiet work out. Usual work by threes. Special attention to riding horses on designated points, and executing various movements between these points. Jumped a few low jumps.

17. In hall: Work out and work by threes at halting, backing, and by the flanks. An effort then made to have the individual troopers take a canter on the track and go to the corner of the hall, execute an about, and return to the track by a "on two tracks right (left) oblique." This with an object of working up to the change of lead at the gallop. The result was not good at the gallop, the movement was then practiced at the slow trot.

19. Long work out at the trot, the gallop, and extended gallop. Special work at taking the canter on the inside track from a slow trot, and doing this several times while going around the hall. Also practice on "forehand in." Put horses through jumping chute without riders, two jumps 3 ft. 9 in.

20. In hall: Usual work out and work by threes. Special work of having individual troopers take the different gaits between designated points, halt, back, and turn on the forehand. Smoothness and precision of movement sought. Talk on the two methods of teaching the horse to take the gallop. 1st by extending the trot until the horse of his own free will breaks into the gallop. 2d. By taking the gallop from the collected trot. The advantages and disadvantages of both methods were explained.

21. In hall: Usual work out. Special attention to work by threes, halting, backing and work by the flanks, this at all gaits. Continuation of talk on the two mehtods of taking the gallop.

22. In hall: Usual work out. Work by threes same as the 21st. Individual troopers riding around stakes at canter. Jumping with rider at the gallop, jumps 3 ft. high.

23. In hall: Very quiet work out. Long work by threes at the slow trot, practice at halting and moving by the flanks. Individual exercises at taking the walk, slow trot, canter between designated points, and in halting backing, and turning on the forehand at designated points. Jumping same as the 22d.

26. In hall: Work at walk, trot and gallop simply for horse exercise. Teams busy hauling snow out of the hall so that regular instruction was interferred with.

27. In hall: Usual work out with practice in taking the canter. Jumping at the gallop over four 3 ft. jumps

on the track. Jumping poor with a number of horses falling.

28. In hall: Usual work out. Long drill at the slow trot in work by threes and in taking the canter from the slow trot. Horses put through the jumping chute. Talk on the two methods of teaching the horse to make the change of lead at the gallop. That is, from the extended gallop and from the collected trot.

29. In hall: Work out at walk and trot. Talk regarding incorrect work done by the class when executing two track exercises, explanations and corrections of this work given. Practice in carrying these out while executing "haunch in" at the slow trot. Continuation of talk regarding change of lead in the gallop. Horses put through jumping chute.

March.

1. In hall: Same as the 29th ult. with continuation of same explanations.

2. In hall: Long work out at walk, trot, and gallop. Continued practice on two-track work, and riding horses on a straight line at a collected trot.

4. In hall: In the morning one hour. Principally horse exercise. In the afternoon in hall 20 minutes in a ride given for the Kansas State Agricultural College students. Exhibition of the work of the class had done to date.

5. In hall: Long work out and quiet work by threes with special practice at halting, backing and moving to the front promptly. Continuation of talk regarding change of lead at the gallop. Horses put through jumping chute.

6. In hall: Long work out and work by threes at all gaits. Commenced practicing the change of lead at the gallop by taking the gallop on the right hand, changing hands and applying the aids for the gallop left as the horse took the curve to the left at the extremity of the diagonal of the hall. Horses put through jumping chute.

7. In hall: Long work out. Work by threes at walk, slow trot, trot and gallop. Exercises on two tracks in column at slow trot. Practice in change of lead the same as the 6th. Horses put through jumping chute.

8. In hall: Usual work out and work by threes. Execution of two-track work in column at slow trot. Talk on the gallop and change of lead at the gallop to clear up points on which students officer were confused.
9. In hall: Usual work out, exercises by threes, on two tracks, and practice at change of lead at the gallop.
11. In hall: Bit and Bridoon bridle put on. Long talk on adjustment of the bit and curb chain. The action of the bit and the various methods of holding the fore reins with an explanation of the advantages and disadvantages of each method. Horse exerciesd one-half hour at the walk and the trot.
12. In hall: Usual work out. The organized work included the walk, trot, and gallop on both hands. Exercise by threes, individual abouts, by the flanks, on two tracks, backing, turning on the forehand, halting from the trot; first trooper from front to rear on large circle at the gallop; individual riding on straight line at the trot; from front to rear at the trot to outside between column and the wall. Work was with double bridles with curb reins hanging rather slack. Put horses over two jumps in chute, one jump 3 ft. high, the other 3ft. 6 in. high. Explanation and demonstration of the use of the whip dismounted causing the colt to yield the haunches to right or left upon application of the whip at the point where the leg would act.
13. In hall: Review same as the 12th, except that horses were ridden over two 3 ft. hurdles instead of being put through the chute without riders, curb chains unhooked.
14. In hall: Review same as the 13th, except that no jumping was done. Advance practice on change of lead at the gallop, also explanation and demonstration of the direct flexion of the jaw by use of the curb bit while working dismounted.
15. In hall: Review same as the 13th. Advance flexion of the jaw dismounted by use of the curb and snaffle reins.
16. In hall: Work out on track on both hands at walk, trot, and gallop. During work out students practice holding the double reins in one hand, both right and left. Sets of threes executed by the flanks, abouts, on two tracks, halting from the trot, backing and turning on the fore hand. Executed serpentines and large

circles, trotting on straight line, also taking the gallop with lead left on the straight line.
Rode over 3 ft. jumps, first by having each student go over alone and later by riding in column at gallop with distances of 20 ft. Curb chains unhooked.

18. In hall ¾ hour: Usual work out at walk, trot, and gallop. Jumped two 3 ft. jumps in column with extended distances. Practice at demanding direct flexion dismounted.
Outside on road ¾ hour at walk and trot.

19. Outside 1 hour: Over hills for about six miles at walk, trot and gallop.
In hall 20 minutes: Putting horses through jumping chutes, two three-foot jumps without riders.

20. In hall: Usual work out. Work by threes, by the flanks, backing on two tracks, haunches in, forehand in, halting at designated points, and changing the lead at designated points when moving at the gallop. Explanation and demonstration of the methods for obtaining a good carriage, collection, and the direct flexion while the horse is moving to the front and the rider working dismounted.

21. In hall: Work out on both hands at will. Work by threes at all gaits, taking both leads from the slow trot while passing on a straight line through the hall. Correcting and setting of the head and the direct flexion by use of the curb reins and whip while the rider is working dismounted and the horse is moving to the front. Horses put through jumping chute without riders; over two hurdles, one 3 ft. high and one 3 ft. 8 in.

22. In hall: Work by threes, practice in riding around stakes making the stake the center of the curve at the walk, trot, and canter, also the change of lead at the gallop in passing between stakes. Explanation of how to carry and use the riding whip. Practice at direct flexion dismounted with the horse between the rider and the wall.

23. In hall: Usual work out. Work by threes, by the flanks, backing, turning on the forehand at taking both leads at the canter and change of lead at the canter. Horses put through jumping chute with riders, two 3 ft. jumps.

25. In hall 20 minutes: Then on road at walk and trot for 55 minutes. Returned to hall and jumped in column

with 20 ft. distances over two 3 ft. hurdles, also jumped individually. Executed direct flexions and placed the head and neck by use of the whip dismounted with the horse between the rider and the wall.

26. In hall: Work out on both hands at trot and gallop. Work by threes in executing abouts, by flanks, two tracks, halt from the walk and slow trot. Explanation and demonstration of "shoulder in." Practice with whip in changing grasp from that of carrying position to that of using position and vice versa. Explanation of how to hold and use the reins while riding at the gallop, keeping the horse straight and steady, if he is pulling too hard, the ordinary methods of holding.

27. In hall: Usual work out. Executing movements on circles, movements by the flank, halting from the trot, facing to the flank and backward. Took the gallop at slow trot on straight line. Jumped over two 3 ft. jumps several times in column.

28. In hall: Work out on track on both hands for 10 minutes.
Work by threes, including change of lead with change of direction.
Work between designated points requiring the rider to halt, turn on the fore hand, execute haunches right or left at designated points. Practice whip exercises.

29. Outside 1 hour: Rode over jumps in woods across railroad.
In hall one-half hour: Explained how to execute half turns on haunches and demonstrate the same. Executed individually half turns on the horehand and figure of eights. Practice on taking lead on straight line through center of the hall, changing as often as possible with smooth work by coming to the slow trot.

30. Outside ½ hour: At will on road in pairs.
In hall 1 hour: Long work by threes at various exercises. Practice in changing lead at gallop while in column and in working by threes. Whip exercises. Individually practicing at "shoulder in."

JUMPING CLASS.

Schedule February 1st to 8th—One hour per day.

1. In hall: Suppling exercises for horses; jumping, 6 jumps on track, one trooper at slow trot at each jump

on circle tangent to inner end, taking jump at same gait when horse goes quietly, then change jumps till all are taken, alternating hands on circles. Jumps 2 ft. 3 in. high, no wings.

2. In hall: Suppling exercises for riders and horses; galloping in 2's, 3's and 4's; riding and jumping without reins or stirrups, jumps 2 ft. 3in. high, 20 ft. apart.
3. In hall: Suppling exercises for horses and riders with and without reins or stirrups; jumping six jumps 2 ft. 3 in. high scattered through hall parallel to sides, taken at a walk and slow trot by executing serpentines the length of the hall, two horses lengths between troopers, no wings.
5. In hall: Suppling exercises; jumping pig pen, in at gallop and out at trot, jumps 3 ft. 4 in. high.
6. In hall: Same as 3d.
7. In hall: Same as 1st. Outside: 15 minutes walk.

Schedule February 9th to March 31st—1 hour 20 minutes per day.

9. In hall: Suppling exercises; galloping in pairs; jumping without riders in chute, jumps 3 ft. 4 in. high, 3 ft. 6 in. broad, about 30 ft. apart.
10. In hall: Same as 3d.
12. Same as 9th except last jump 4 ft. 3 in.
13. Same as 2d.
14. In hall: Suppling exercises; jumping four jumps 3 ft. high, 16 ft. apart, without reins.
15. In hall: ½ hour, over a 3 ft. "in and out" at slow trot. Outside: 1 hour, walk and trot over varied ground and ½ mile gallop.
16. Outside: 1 hour walk through woods over small jumps on slippery ground. In hall: ½ hour over jump 3 ft. high, 4 ft. wide at quiet trot.
17. In hall: Same as 3d, except all work without stirrups.
19. In hall: Work out, galloping in pairs; jumping in and out 3 ft. to 3 ft. 8 in., halt 10 yards beyond, turn and over in opposite direction.
20. In hall: Suppling; jumping three jumps 3 ft. high on one side hall, continuing gallop around hall till taken twice. No wings.
21. In hall: Same as 19th.

23. Outside: Up and down cañons at walk, galloping in between.

24. In hall: Same as 20th, except one jump 4 ft. high with wings.

26. In hall: Quiet work suppling.

27. Outside: Trot and gallop through woods over a few small jumps.

28. In hall: Same as 2d, except all jumps 3 ft.

29. In hall: Same as 9th.

March.

1. In hall 1 hour: Work without stirrups. Outside ½ hour: Walk and slow trot on road.

2. Outside 1½ hour: Walk, slow trot on road.

4. In hall A. M.: Work out 45 minutes. P. M.: Exhibition in hall for Kansas State Agricultural College students. Suppling exercises for riders without stirsups or reins; jumping with both at gallop twice around track, two 3 ft. 8 in. bar jumps on one side, three 3 ft. jumps on the other about 20 ft. apart; without reins or stirrups over the three 3 ft. jumps; without stirrups once around at gallop over all jumps.

5. In hall 1 hour: Work out; twice over double jump and back in pairs at trot; over same, one by one from column at trot; same at gallop. Outside ½ hour: Walk and trot on road.

6. Outside 1½ hours: Short gallop through woods. Through hill pasture over 7 jumps 3 ft. 6 in., walking in between, troopers about 75 yards apart.

7. In hall: Work out; suppling exercises for riders at gallop; jumping from column of troopers at trot; same without reins, arms folded; same without reins or stirrups, arms folded. Three jumps 3 ft. high, 20 ft. apart, used throughout.

8. In hall: Suppling; jumping through chute without riders up to 4 ft. 3 in. high, 6 ft. broad.

9. In hall: Suppling exercises and riding and jumping with and without stirrups and reins; 4 jumps 3 ft. high, 20 ft. apart, over three times, arm folded.

11. In hall: Suppling; five jumps on track, 3 ft. to 3 ft. 9 in. high, no wings, around twice at gallop.

12. In hall: Gaiting 6 and 8 mile trot, 1 mile at 15 mile gallop, after 5 minutes repeat on other hand, then ½ mile same rate. Jumps same as 11th taken on other hand.
13. In hall: Suppling exercises; gaiting; other work same as 9th, except jumps 16 ft. apart, first and second time over reins in right hand at first jump, left hand third jump, no reins second and 4th jumps; third time over arms folded at all jumps. Throughout other work reins held in outer hand, whip in inner.
14. In hall: ½ hour suppling; outside ¾ hour: Walk and trot and over a few small jumps.
15. Same as 13th, except 5 jumps.
16. In hall: Gaiting; 1 mile slow trot and trot; 1 mile at 15 minutes gallop and after 5 minutes 1 mile at 12 mile gallop. Outside ½ hour: Road work.
18. In hall: Gaiting; ½ mile slow trot; ½ mile trot, 1 mile 16 mile gallop and after 5 minutes repeat. Jumping five jumps on one side of hall 3 ft. to 3 ft. 8 in., on other side triple bar 3 ft. wide, 3 ft. 9 in. high, twice around. Riding with reins in one hand. Outside: 15 minutes.
19. In hall: ½ hour gaiting, ½ mile slow trot, ½ mile trot, practicing at the 12 and 16 mile gallop. Outside 1 hour: Leaving hall by trooper one minute apart, walk for one mile, slow gallop 1 mile over Republican jumps; walk home.
20. In hall: Suppling exercises; riding without stirrups or reins; over 6 jumps 3 ft. high, 20 ft. apart, reins in one hand, changing hands at each jump.
21. Same as 18th.
22. In hall: 1 mile at 15 mile gallop, repeat in 2 minutes. Outside: Walk, trot, gallop and hill climbing.
23. Same as 20th.
25. In hall: Work out at walk, trot, gallop; on one side of hall, 4 ft. stone wall, triple bar, first bar 2 ft. 6 in. high second bar 3 ft. 1 in., third bar 3 ft. 9 in. and combined jump. 5 ft. wide; on the other side 3 ft. jumps 12 ft. apart, over all three times.
26. Same as 19th.
27. In hall: Work out in pairs at trot and gallop; suppling exercises; 6 jumps 2 ft. 8 in. high, 12 to 22 ft. apart, once over, changing reins from one hand to other between jumps.

28. Outside: Weighed horses; through ravines at a walk.
29. Outside in pairs at walk and trot ¾ hour. In hall: Enter one at a time, once over at a gallop, 3 ft. 6 in. stone wall, 3 ft. 9 in. triple bar, 3 ft. jumps, all on track and two 3 ft. 8 in. bars in center of hall.
30. Outside: Leaving hall by trooper ¾ minute apart; walk ¾ miles then for 1¼ miles walk and gallop at will across country, over 5 post and rail jumps 3 ft. 6 in., and 3 ft. 9 in. high; walk home.

SECOND TRAINING CLASS.

Schedule February 12th to March 31, 1912—¾ hours per day.

In order to give the student officers an opportunity to train two horses during the school year this additional class was taken up. Twenty-one of the horses were thoroughbred colts coming four years of age. The other six were backward horses turned back from the regular training class. Most of the colts had been bought in Kentucky or Virginia and had been handled more or less. The fact that they had been running loose in the pasture for a unmber of months necessitated their being treated, however, the same as green horses. Due to the practice that the student officer has had to date it is expected that three months' work will make these horses a very fairly well trained cavalry mount.

12. Horses quietly bridled in stalls by student officers and led to the riding hall. Very little difficulty experienced in doing this. At the hall the horses are handled, patted and rubbed with the riding whip. After they seemed to be quiet an effort was made to lead them, the rider walking along side of the shoulder, and the horse induced to move to the front by the use of the *tongue* and gentle taps on the side with the whip where the leg would be used. This work was done on both hands.
13. In hall: Same as 12th.
14. In hall: Same as 12th with the addition of putting on the cavesson and commencing longeing. In this, small longeing pens are made and horses started in these. When the horse went well in the pen he was longed in the open hall.
15. In hall: Same as the 14th. Student officers are changing horses daily.

16. In hall: Same as the 14th, except that longeing pens were made silghtly larger.
19. Temporary assignment of horses to officers made. Horses longed both inside and outside of longeing pens. Work continued of officers leading horses by walking along side of shoulder. An effort made to keep the horse light up against the bit, the head well carried.
20. In hall: Same as 19th except pens made larger and surcingles put on such horses as went quietly.
21. In hall: Same as 19th with the addition that first surcingles were put on and then the surcingles and blankets.
23. In hall: Same as the 21st.
26. In hall: Same as the 21st.
27. In hall: Same as the 21st.
28. In hall: Same longeing as usual. After 15 minutes longeing saddles were put on and longeing continued. Near the end of the lesson most of the horses were mounted and a few were ridden short distances.
29. In hall: Same as the 28th.

March.

1. In hall: Same as the 28th with the addition that all horses were mounted and ridden a short time at the walk.
4. In hall: ½ hour in the morning: Horses longed and saddled and most of them mounted and quietly ridden. In the afternoon, in the hall 20 minutes for an exhibition ride given for the students of the Kansas State Agricultural College. Work with this class such as to demonstrate progress to date.
5. In hall: Horses longed as usual. All saddled and ridden at walk and slow trot.
6. In hall: Horses longed as usual. All mounted and ridden at walk and jog trot in column.
7. In hall: Same as the 6th.
8. In hall: All horses longed without use of pen. All mounted and ridden in column. Different horses in turn placed at the head of the column, this in order to accustom all to go without the help of a leader.
11. In hall: Same as the 8th.
12. In hall: Longed and ridden as usual. Exercise commenced of making horses yield to the haunches by

the application of the whip while the rider is working dismounted. The rider must demand only the yielding of a step or two at a time.

13. In hall: Same as the 12th.
14. In hall: Same as the 12th with the addition that horses were worked in column in a little and turns made by the flanks by opening out the inner rein and applying the inner leg.
15. In hall: All horses longed. Mounted and ridden at will in column at extended distances. No particular effort made to maintain *regular distances*. A little work in turning by the flank at both the walk and slow trot. Dismounted work of teaching the colt to yield the haunches to the application of the whip.
18. In hall: Same as the 15th.
19. In hall: Same as the 15th.
20. In hall: Same as the 15th except that the time spent in longeing is being decreased, and the time spent at riding increased.
    Also a little more work by the flank being given.
21. In hall: Same as the 20th.
22. In hall: Same as the 20th.
25. In hall: Same as the 20th.
26. In hall: Usual longeing and riding at will at walk and trot. Work in column at the walk and trot with practice in moving by the flanks. Commence requiring the horse to yield to the leg by executing "On forehand half turn in reverse" for a few steps.
27. In hall: Same as the 26th.
28. In hall: Same as the 26th, with a little more work by the flanks and at the trot. Also an increased amount of practice as on turning a few steps on the forehand half turn in reverse.
29. In hall: Same as the 28th.

STABLE MANAGEMENT, GROOMING, CONDITIONING AND CARE OF EQUIPMENTS.

Schedule February 12th to March 30th—¾ hour per day.

12. Talk on grooming, articles used and quality of them, exhibit of best on hand. Care of these articles and purpose for which used. Object of grooming and effect on the horse. Cooling hot horses.

13. Practical demonstration of grooming, proper use of implements and method of cleaning different parts of the horse.
14. Bandages and thier use: Demonstration of putting on working bandage, and practice by student officers on front leg of horse.
15. Practical: Student officers put on working bandgaes on front and hind legs of the horse.
16. Demonstration of bandages for work, put on with cotton wool, cotton quilted pads, and shaped felt pads. Talk on rest bandages, demonstration of how to put them on.
19. Practical: Student officers put on rest bandages on front and hind legs of the horse.
20. Talk on use of hot and cold bandages, and demonstration.
    Practical: Student officers put on various bandages.
21. Talk on usual methods of protecting young horses where given first lessons over jumps, exhibition of the various articles and demonstration of putting them on. Practical work in bandaglng by students.
23. Demonstration in braiding the mane in a continuous braid.
26. Practice by student officers in braiding mane as demonstrated on 23d.
27. Demonstration of three ways to braid the tail.
28. Practice by student officers in braiding tails.
29. Lecture: Stable vices and ususal methods for overcoming or avoiding harm from them; precautions to be observed against vices; effects on grooms and their treatment of the horse; cribbing, wind sucking, weaving, kicking, pawing, biting, pulling back, tearing clothing, etc.

March.

1. Lecture: Stable vices and bad habits of horses, gnawing walls and woodwork, rubbing tails, gorging, throwing out grain, eating filth, kicking, biting while being groomed bruising hock and knees, eating bedding, etc.
5. Lecture: Care of a horse as to work when shedding, feeding, grooming, and how to secure a good coat. Practical work in braiding tails as on February 28th.

6. Lecture in clipping: Advantages and disadvantages, proper time; various methods; how it should be done and care of tools.
   Practical: Pulling manes on 2d training colts.
7. Lecture: Watering, feeding hay, and evidence of good grooming and proper feeding.
   Practical: Same as for 6th.
8. Lecture on shipping horses: Clothing and protection necessary, feeding and care en route, emergencies; exhibited articles for protection, knee boots, bell boots, hock boots, tail guards, etc.
11. Lecture: Care of feet in stables and in the field; effects of improper care and discussion of the various methods employed.
12. Demonstration: Of method of tieing up tails for muddy weather and parctice at same by students.
13. Demonstration: Decorative braiding mane in "nubs" with needle and thread and practice in same by students.
15. Lecture: Fundamental principles of conditioning and training horses for hard work or unusual effort as for racing.
18. to 29 except 21. Each student officer began "finishing off" his own training colt, i. e., pulling manes, forelocks and tails, training ears, fetlocks coronets and place for the crown piece. The manes were trimmed by pulling, or if thin by breaking the ends, so that the ends were paralell to the crest showing a clean throat latch. Tails were trimmed by pulling and the ends broken so as to hang just above the hocks when in action. Forelocks pulled to get rid of short upstanding hairs and to show a smooth lock ending just above the eyes. At the coronet overhanging hairs were trimmed so as to show the wall clean. Fetlocks clipped close. The worn place on the poll from crown piece of halter or bridle was clipped out. The edges of the ears were held together and all projecting hairs trimmed off.
21. Lectures on the importance of maintaining the health of the horse during preparation for fast work and the evidences or signs that it is becoming impaired.

PRINTED EXERCISES.

Only such exercises as have been given in printed form to student officers are reprinted with this diary.

FOREHAND IN (out).

Purpose:

This exercise is a combination of work on the circle, the flexions, and of haunches right (left), and is preparatory to "Shoulder In." It is also a preparation for the gallop, for the counter gallop, for bringing a horse to the trot from the gallop, and for preventing him from taking the gallop when it is not desired. The horse is suppled in the poll and asked to bend in the body while moving on a straight line. The inner hind is asked to stride a little further under and pick up more weight. It is therefore suppled and developed. In this exercise, the demands on the horse are so slight that resistance should not be encountered. At the same time, the horse is so prepared for "Shoulder In" that the latter should not present a serious difficulty.

Execution:

Being on the right hand, to execute "Forehand In (Out)." Lightness, cadence and balance are first demanded. The horse is then required to yield a very slight laternal flexion to the left rein only so that the rider sees the edge of the nostril and curve of the eye. The forehand is then moved a short step inward (maintaining the flexion) so that the left fore will be traced by the right hind. Moving in this manner, there is a slight curve throughout the horse around the left leg, but in the neck the bend is in the poll joint.

Aids:

The rider's left leg is at the girth, pressing lightly inward to get the bend in the body and to help to keep the forehand over.

The right leg is back of the girth and guards the haunches holding them to the straight line.

The left rein secures the lateral flexion (as already given), and is always light and steady in its place near the withers.

The right rein leads the forehand to its line and guides it in its direction. Half halts are made, principally, on this rein.

Both legs maintain the foreward drive and both hands the collection.

The balance of the rider is over the center of the saddle.

Faults:

The principal faults are:

I. The flexion not correctly made; i. e., with the nose stuck out to one side and the top of the head tilted to the other.

Correction:—Raise the hand on the side opposite to that toward which the nose is thrust.

II. The neck bends in the middle too much.

Correction:—More tension on the opposite rein and this rein pressed on the bulge of the neck.

III. Neck bends at the withers to the leading rein (in the case above, the right rein).

Correction:—Straighten on the track. Secure the correct lateral flexion, and bring the forehand in again, with the left leg *and right rein.*

As in other exercises, this one should be given first at a walk and thereafter at a school trot.

To execute "Forehand Out" the reverse aids are applied.

SHOULDER IN (out).

Purpose:

The two main purposes of this lesson are the bending of the horse and the development of the power in the hind legs to carry a greater portion of the load and at the same time to thrust it energetically forward. This lesson together with the other various bending lessons have for their final objective the straightening of a horse so that he goes "true" without loss of direct drive from behind. By bending the horse in his body, and driving in a sidewise direction, each hind leg as it performs the duties of the inner receives a double portion of the load to carry, and in consequence develops muscle rapidly. The back and loins are bent laterally to both sides, and from the thrusting under of the hind legs acquire the ability to flex vertically—in other words, to form an arch.

The yielding to one rein at a time leads to a more certain yield to both reins directly. The shoulders are suppled and acquire more freedom. This work with a horse in a bent position stretches the entire layer of muscles on the convex side and correspondingly contracts those on the concave side. This alternate extending and contracting has a tremendous effect in developing the entire muscular system.

The practical results obtained are therefore, an increased ability, 1st, to carry weight, from the arching of the back; 2d, to execute sudden turns in any direction on the haunches; 3d, to increase the stride due to the increased thrust-under of the hind feet and the freeing of the forehand; 4th, to shift the balance from front to rear, or vice versa, thereby making easy the increase or decrease of pace, or changing of gaits; 5th, to come to a sudden halt from any gait. Furthermore, the increased power behind is ready for use in jumping or in heavy going. And not least important of these most essential results is that when a fault is made in front, as in stumbling, or stepping in a hole or blind ditch, one hind foot is always ready to slip under and lift the whole mass out of the difficulty. This finished execution of these lessons is a matter of weeks or months, and even a year or more may be required, depending upon the apitude and willingness of the horse, and the ability of the rider.

Execution:

Being on the right hand at a school trot the horse is required to yield a slight lateral flexion to the right rein. While maintaining this flexion the forehand is carried to the right until the left fore is tracked by the right hind. Moving in this manner the horse goes forward on a straight line, but is bent around the rider's right leg, the hind feet on the track, the fore feet on an inside line parallel to the track. Balance, cadence and lightness must be maintained.

Aids.

The right rein secures and maintains the flexion and leads the forehand to the inner track. In moving the forehand this rein is opened slightly to assist the left which is closed It also assists in maintaining the bend in the hores's body.

The left rein is closed to displace the forehand. It guides the forehand on its inner track parallel to the wall and is responsible for the elevation of the head and neck. Half halts are made principally on this rein. It also prevents the shoulder from falling out.

The rider's right leg on the girth assists the right rein in maintaining the bend in the horse, drives the horse forward into his bridle, and working in harmony with the horse's right hind leg keeps that leg up to its work.

The rider's left leg in rear of the girth assists in maintaining the bend throughout the horse, guides the haunches on the track and guards against their falling out.

There is a slight carrying of the rider's balance to the right.

Faults.

1. By a considerable bend of the neck in the middle of the inside, the horse may deceive his rider and avoid the bend in the pole and in the body so that the right hind does not have to pick up any extra weight; the left rein against the bend in the neck, the left leg back of the girth with the right leg firmly placed at the girth will demand the bend in the body and the straightening of the neck.

2. Loses collection and goes slouchy; more leg and hand.

3. Croup falling out (To the left); increase use of left leg and left rein.

Shoulder out.

Executing "Shoulder Out" on the right hand the above aids are reversed, the forehand being carried to the left.

SYNOPSIS OF PRINCIPAL TALKS.

THE GALLOP.

There are two general methods of teaching the horse to take the gallop. The first, we will call the Collected Method, the second we will call the Extended Method. While these methods start from opposite directions, they both seek to

reach the same result. That is, a horse which will promptly take the gallop with either lead upon the proper application of the aids. They both have their advantages and disadvantages, and while starting from opposite directions they gradually become merged together in the thorough training of the horse.

In the first, or the Collected Method, the horse should have already been well schooled in the collected trot. The horse being at this gait on a circle on the right hand,the aids for gallop, lead right, are applied and an attempt made to induce the horse to spring into the gallop right. This is continued until the horse takes either true lead on the circle, and then he is gradually taught to do the same while working on the straight line. In this method the horse goes into a rather slow collected gallop and afterwards he is gradually taught to take the more extended gallop, or to take the canter. This method has the advantage that the horse is always under the control of the rider and therefore learns discipline as he gradually goes from the collected trot into the collected gallop and at no time is out from under control. It has the disadvantages that the horse must be well trained in the collected trot before he is put into the collected gallop; that, in the hands of the average rider it is difficult to have the young horse well schooled in the collected trot. Also for the outdoor horse you want a long, free swinging gallop in order to cover as much ground at each stride as possible, and in this method the horse has a tendency to learn to take a short collected stride. Of course, this disadvantage should be gradually obviated by inducing him to take a more extended gallop as his training progresses. You will find, however, that this is the method laid down in most books on equitation because the writers of these books are masters of equitation and are seeking for a highly trained horse and one which is thoroughly disciplined, they also sufficiently expect to take advantage of its advantages and to guard against its disadvantages.

In the second, or Extended Method, we will put the horse on a circle on the right hand at the trot. Gradually increase this trot, at the same time applying the aids for

gallop right, until the horse of his own free will in order to maintain his balance springs into the gallop right. During the time that he has been in this extended trot he has more or less gotten out from under the control of the rider and in springing into the gallop is probably more or less from under the rider's control. He is gradually brought under the rider's control and brought into a well regulated gallop. The horse, having learned to take the gallop from the extended trot, upon the proper application of the aids, is gradually taught to take the gallop from the slower gaits whenever the aids are applied and thus is brought back from the extended method to the collected method of taking the gallop. It will be seen that the two methods gradually merge into each other. The advantages of this second method are that it can be put into practice very early in the training, that the horse learns to take a long extended gallop at the very beginning, that it can be used by more or less indifferent riders as the horse will naturally break into the gallop if the gait of the trot be extended. It also has certain disadvantages which are, the horse loses discipline during the time which he is at the extended trot and on taking the extended gallop as he is more or less out from under the control of the rider. Also he learns that when the trot is uncomfortable for him he can ease himself by springing into the gallop. He also may acquire the habit of rushing on taking the gallop. These disadvantages must be guarded against and gradually overcome as the training progresses. The horse is gradually brought to the perfected condition which is a horse that will take either the extended or the collected gallop from any gait upon the proper application of the aids. This second method, even with its disadvantages, is probably more suitable for the training of the troop horse in the hands of the average rider.

CHANGE OF LEAD AT THE GALLOP.

In order to understand how to make the change of lead at the gallop it is necessary to know the analysis of the gait. The horse takes the gallop from the halt, the walk, or the trot, by placing the weight upon the forehand, and by then planting a hind leg under the center of gravity; and from the

time the hind leg is planted the horse is in some form of gallop. The gallop is a pace of three or four beats (depending upon the state of the collection of forces and upon the rate of speed), with a leap from a fore-foot at each stride. The horse goes into the air from a fore-foot, which is the right for lead right, and then plants the opposite hind leg, or the left; he then brings the right hind leg to the ground and at about the same time or afterwards (depending upon whether it is a three-tempo gallop or one of four beats), he plants the fore foot (left) opposite to this second planted hind foot; he then brings the fore foot to the ground (right) from which it went into the air, and from this last leaves the ground for a new stride. That is, in gallop right the horse goes into the air off the right fore foot and at this time has all of his feet in the air, he then plants the left hind foot, the right hind foot, immediately afterwards the left fore foot, then the right fore foot from which latter foot he then springs into the air for a new stride.

There are also two methods of teaching the horse to make the change of lead in the gallop, similar in many respects to the two methods of teaching the horse to take the gallop from the trot. Both of these methods have their advantages and disadvantages and gradually merge into each other and both seek for exactly the same end.

The first method we will call the Collected Method. In this the horse should have been well schooled to take the gallop from the trot, that is, either lead right or lead left. The horse being at the gallop, lead right, is brought to the trot for several strides; the aids for gallop left are then applied and the horse induced to take the gallop with that lead. The horse is then again brought to the trot, and, after a few strides, the aids for a new lead applied again and the horse induced to take the gallop with the new lead. Gradually the number of strides at the trot are reduced to three, to one and finally to simply a semi-halt. As the semi-halt is made the aids for the new lead are applied and the horse induced to take it from the semi-halt. Gradually the semi-halt is done away with and while the horse is in the gallop the aids for the new lead are applied and the horse makes the change of lead

while in the gallop. This method has the advantages that the horse is always under the control of the rider, is light, supple and collected, and does not have the tendency to rush when you make the change of lead. It has the disadvantages that the horse must be well schooled in the collected trot, and the rider must be skilful enough to obtain the semi-halt and apply his aids for the new lead without producing resistance on the part of the horse; that the horse in making his change of lead is likely to have it cramped and choppy instead of long and swinging as is desired in the outdoor horse; that the horse in feeling the change of lead is to be demanded is likely to take a few strides at the trot before springing into the new lead. As the training progresses the rider seeks to obviate these two last disadvantages by merging this method into the extended method which will now be explained.

THE SECOND, OR THE EXTENDED METHOD.

It is of course assumed that the horse will take either gallop right or left upon the proper application of the aids. The horse being at the gallop right on a circle on the right hand is made to change circles and upon entering the new circle, that is, a circle on the left hand at the other end of the hall, the aids for gallop left are gently but firmly applied. The horse if he does not make the change of lead upon the application of the new aids, is pushed into a more raipd gallop until of his own free will probably makes the change of lead in order to maintain his balance. If he has been well trained in taking the gallop right and left he will likely make this change of lead very shortly, if he does not, however, he will have to be brought back to the trot and the aids for gallop left applied. This method of changing circles is continued and the new aids applied as the horse changes the direction of the curve until he learns that upon the application of these aids he is to make his change of lead. The size of the circles are gradually increased until they become straight lines. The speed of the gallop is gradually decreased until it becomes a canter. This method has the disadvantages that the horse has a tendency to rush as he makes the change of lead, also that while he is being pushed into the extended

gallop in order to induce him to make his change of lead he is to a certain extent, out from under the rider's control and therefore loses discipline. It has the advantages that it can be taught with a relatively low degree of training, that it can be applied by more or less indifferent riders, that the horse has no tendency to come to the trot in making the change, and he learns to make a long swinging stride in the change as desired in the outdoor horse. Of course, its disadvantages must be guarded against by gradually merging it into the collected method. The collected method is the one laid down in most books on equitation for practically the same reasons that were given in the talk on teaching the horse to take the gallop The extended method is better, I believe, for the average troop horse. All that you desire of him is that he will take the gallop right when on a circle to the right, and the gallop left when on a circle to the left, and make the change of lead as he changes the direction of his curve. With this method the horse, in the hands of the average trooper, can be readily taught to make his change of lead as he changes the direction of his curve.

Carrying the training further as it should be with the officer's charger the question now comes, when to apply the aids in order to obtain the change of lead at any given stride. We will assume that the horse is in gallop, lead right, and it is desired to obtain the gallop, lead left. Remember that in gallop right, the left hind first comes to the ground, then the right hind, then the left fore, then the right fore, and the horse springs into the air off the right fore, all four feet then being in the air. In order to have a gallop left behind the order in which the hind feet are to strike the ground must be reversed and the right hind must strike the ground before the left hind. In all our work we have followed the principle that to advance a horse's hind leg the muscles on that side must be excited by the leg of the rider on the same side. Remember we assumed the horse in gallop right and in the natural order the left hind foot is to be planted before the right hind foot. To get the gallop left behind we must change the order in which those hind feet are being planted and cause the right hind to be planted before the left hind. To do this

we must suddenly excite the muscles on the right side and cause that hind leg to be jerked to the front and the foot placed on the ground before the left hind, if this happens we will have the order of gallop left behind. You must also bear in mind that the horse is moving rapidly to the front all of the time, and try to picture that this change is made while he is thus moving and not standing still. As his right fore leg is extended and coming to the ground his hind legs are coming up under him to be placed in the order for the gallop right. If the rider, as the right fore leg is coming to the ground, applies his right heel to the horse's side he will excite the muscles of the right hind leg and cause it to be brought to the front and the foot placed on the ground before the left hind foot, thus giving him the order of gallop left behind. The horse's right fore foot in the meantime has struck the ground and he has gone into the aid, all four feet being in the air, the hind feet coming to the ground with their order reversed (right-left), he then reverses the order of his fore legs by extending his right fore leg planting that foot before the left fore foot, bringing the left fore foot to the ground last and going into the air off this left fore foot. He thus then has the gallop left both in front and behind and has made a true change of lead at the gallop, the change being made in one stride. In short to obtain the change, being at the gallop right, and the gallop left is desired, as the right fore leg is being extended to come to the ground, apply the aids for gallop left. In order to obtain the gal op right from the gallop left, apply the aids for gallop right as the left fore leg is being extended to come to the ground.

The above where the hind legs are changed before the fore legs gives a true change of lead as it is done in the same stride and the horse at no time has a false (disunited) gallop. The method often seen of throwing the forehand from side to s de and causing the horse to change the fore egs before the hind legs does not give a true change of lead. The reason for this is that as the horse's fore legs are in the air the hind legs are committed to a certain order and have either come to, or are about to come to the ground. If the order of the fore legs is then changed the hind feet have struck the ground

in the old order the fore feet will strike the ground in the new order giving the horse at this time a disunited gallop. The hind legs will change their order in the next or some future stride when the weight is on the forehand, but there has been a portion of a stride where the horse was disunited which is not the case where the hind legs change their order first as described above.

THE WHIP.

While etiquette requires the riding whip to be carried the reliance of a good horseman should be his hands and legs. The whip is usually carried in the hand which holds the reins. If the reins are held in both hands the whip may be carried in either hand unless in the riding hall when it is carried in the inside hand. It is grasped at the handle, butt up and point down, passing in front of the knee or across the thigh. The rider should be capable of using it equally well with both hands, and to do this requires a great deal of practice. In racing it must be used so as not to foul a horse along side, in unison with the horse's stride at the gallop, and if practical it is better to use it on the side opposite to which the horse is leading in the gallop in order not to cause him to make the change of lead. In jumping the last two considerations must be taken into account and also the horse's tendency to shy away from the obstacle. These points show how necessary it is for the rider to be able to use it equally well in both hands.

The reins being held in both hands, and it is desired to use the whip in the hand opposite to which it is being held slip the reins into the hand holding the whip, grasp the handle of the whip with the hand in which it is to be used in the same manner as you would grasp the handle of the saber on drawing it from the scabbard, then draw the whip the same as you would a saber and deliver your blow or blows.

Use the whip in the same hand in which it is being held; slip the reins into the opposite hand, give a quick throw of the point of the whip so as to move it a short distance from rear to front, at the same time opening out the forefinger and allowing the whip to come between the forefinger and

the middle finger supported by the thumb, then with a quick throw downward drop the point from front to rear, twirl it between the fore and middle fingers until the whip reaches a vertical position, point up, then slip the fore finger so that the whip is in full grasp and in a position to deliver a blow. Or give a quick throw of the point of the whip from rear to front, at the same time opening out the fore finger and allow the whip to come between the fore finger and the middle finger, twirl it between these fingers until the whip is nearly vertical, point up, slip the fore finger outside the whip when the whip will be in full grasp and in the striking position.

After the blow has been delivered to return the whip to its regular position; open out the fore fiinger so as to grasp the whip between the fore and middle fingers, then with a quick throw of the point from front to rear allow it to twirl between these fingers until it has reached the vertical position, point down, then by grasping it between the thumb and fore finger the last three fingers can be slipped outside of the handle and the whip is again in the hand in its normal carrying position.

In order to transfer the whip from one hand to the other; slip the reins into the hand which is holding the whip, grasp the handle with the hand in which it is to be held, back of the hand out, draw the whip across the horse's neck, then retake the reins desired in the hand desired in the hand which now holds the whip.

If one will practice twirling the whip in the manner described above while walking dismounted or while moving at slow gaits mounted, efficiency will soon be attained.

CONDITIONING AND TRAINING FOR LONG GALLOPS.

To prepare or condition a horse for any unusual exertion is a much more complex problem than would appear at first sight. There can be no prescribed or fixed scheme of work laid out except in a general way. No two horses can be prepared in exactly the same manner. The nature of the test, the character of the horse, his breeding, and his aptitude for the work, all enter into the problem. Whatever the test, the preparation of the horse must be such that he can absolve

it without injury to himself, whether physical or by the impairment of his nervous organization.

The thoroughbred can race steadily through season after season, and improve in every way. On the other hand the cold blooded horse may become a savage or a nervous wreck in one race. The length of time and the amount of work required to fit a horse for a given test cannot be definitely prescribed. The physical condition of the horse, the internal and external fat, the lungs, the blood, the digestion, all must be considered at the beginning and observed during the entire preparation. When a danger signal shows from any of these sources the work must cease until the damage is repaired.

The state of perfect health must be maintained throughout, or damage will be the sure result. The conditions in general are: the coat should be glossy, and the hair be close to the skin, which should move freely under the hand; the eyes should be bright and the ears alert; the legs should remain clean, and no undue heat be evident; the droppings must be normal and indicate good digestion; the appetite must be good and every feed cleaned up. The horse should be keen for his work and always want to do more than is asked of him. The sweat at first lathery, should become as clear as water and dry quickly as conditions improves. In the gallop the breathing should not become labored or gasping and should return quickly to the normal afterwards.

The work and feed must be gradually increased in proportion with due observation of the above conditions. The actual work consists of slow work and gallops. By slow work is meant the walk and easy trot. By gallop is usually meant the swinging stride at which a horse will go along on his own courage, i. e., without driving, urging, or undue exertion to himself. When he is in company, this is not in the run, but a swinging gallop. In the gallops are included the sprints for short distances to extend the lungs or "to open his pipes." Horses do their work best in company, and better results are secured than when they go alone.

The present test in which some regiments are engaged, is to make four miles in twelve minutes. There are some jumps but these are so low and few in number that they do not enter very largely into the problem for any horse which has jumped at all. This distance in the required time, with the horse in proper condition, is an easy problem for any fair thoroughbred, or any good horse with thoroughbred blood in him, even with the heavy weight to be carried. On the other hand, for cold blooded horses of coarse type and poor action it is a serious task. To some of these it will be a sreious undertaking to gallop at the rate of twenty miles an hour for any distance at all.

However, the best of the troop horses when in proper condition should be able to perform this task easily and it is assumed that the officers entering are at least as well mounted as if on their best troop animals. It is asumed that the horses to be worked with are as our average horse is at the beginning of spring, *i. e.*, soft, over fat, with a heavy coat an absolutely no wind. Before a horse is put to work he should be clipped, if his coat is heavy and thick. Select a suitable day, with sunshine and no cold wind. The horse should be washed after the clipping with soap and slightly warmed water. The soap should be thoroughly washed out, the horse scraped quickly, and given a good rubdown with cloths. Cover him warmly and put flannel bandages on all four legs, and walked until he is thoroughly dry. He should then be dressed down (use a soft brush) and well rubbed all over, and have the bandages removed. Naturally a little more cover should be used, but if he is not exposed to direct draught there is no danger of cold.

FEED.

In the beginning of the work there need be no unusual change in the feed unless the digestion seems disordered. If this occurs the grain should be reduced and one bran mash with a small handful of flaxseed meal given daily if necessary, until order is restored. Of course, if the grain is divided into four feeds spaced as far apart as convenient the results will be better. As long as a horse sweats freely he should not be

denied water. As his condition improves he will demand less. In this connection it may be remembered that horses become very thirsty before midnight, and if water is not left in the stall they will appreciate very much being watered about ten o'clock. About one-third of the hay allowance should be fed during the day, and two-thirds at night; and if very dry, as the prairie hay generally is, it should be slightly dampened. Needless to say, deep fresh beds and clean feed boxes all tend to improve the condition and good grooming is absolutely essential.

WORK.

As for the actual work of training, if the horse can be brought gradually to the point where he can gallop about five or six miles at his own pace—say at the rate of fourteen or fifteen miles an hour—without distress or exhaustion, it may safely be assumed that he will do the four miles in twelve minutes with ease. This six-mile gallop need be demanded only once, and that some two or three days before the test. The day before a good trot, and the morning of the test (after the morning feed), a short canter, a good rubdown, no more hay or grain, a half bucketful of water shortly after the canter, and he is ready.

As a rough outline of work, to serve only as a suggestion, the following is offered: Let the horse go twice each day morning and afternoon. The morning work should be given by the officer himself, and most of it may be done in connection with the regular drills—two hours' drill being the equivalent of about one hour's systematic work. The afternoon work can if necesary be done by a trooper and should consist of about 1½ hours walking outside, either ridden under light weight or led, but the gait should be brisk and lively, not slouchy. After this the horse should be dressed down for the night. The principal work should be done in the mornings, not sooner than one hour after feeding, and this is where the gradual increase of work must be made. The time, as stated, should be from one to two hours. Begin with long walks and short trots and gradually increase the proportion of trot to walk to a ratio of about two to one. In this

work the sweat should be brought out on the neck each day, but the horse back of the saddle should not be wet. This will serve as a fair guide to what the horse is easily equal to. Walking in sand, mud, plowed ground, or up hills, and finally trotting over the same will put on muscle and improve condition very rapidly, and make good lungs, without being as liable to injure the legs as fast work even on the level would be.

The tentative schedule below of gallop work is drawn more with reference to the underbred horse than to one of good quality, and in it one should note that there is very little fast work presecibed.

SCHEDULE.

	Tuesday.	*Thursday.*	*Saturday.*
1st wk.	.....	1 mi. (canter)	1½ mi. cant.)
2d wk.	1½ mi. (14 or 15*)	1¾ mi. (14 or 15)	2 mi. (15)
3d wk.	2¼ mi. (15)	2½ mi. (15)	3 mi. (15).
4th wk.	2½ mi. (15) ¼ mi. (20)	3 mi. (15)	4 mi. (15).
5th wk.	2½ mi. (15), ½ mi. (20)	1½ mi. (15), 1 mi. (20)	4 mi. (15)
6th wk.	1 mi. (15), 1½ mi. (20)	1 mi. (15), 2 mi. (20)	5 mi. (15).

On gallop days a half hour of easy walk and trot should precede the gallop, and the horse should be brought back to the stable cool and dry. If he does come back wet, scrape down, rub over once to get the water out, cover and walk him after giving him a half dozen swallows of water. Flannel bandages put on the legs are very beneficial. Sponging the nostrils and dock help in the process of restoring normal conditions. A few swallows of water at intervals while walking will cool the horse internally, and thus he will not drink a great deal very greedily later on which would probably cause him to break into a second sweat after he is groomed and put away. If the horses tend to become nervous over their gallops, vary just as often as possible the locality in which they are to be worked at that gait. It is also well to return to the stable by a different route from that taken on going out to work, as the horse will thus come home more quietly.

*The figures in brackets indicate the number of miles per hour, or the pace thus: (20) means at the rate of 20 miles per hour.

It is believed that if the above schedule is followed with judgment the horses should attain to such a measure of good condition that the four miles in twelve minutes can be accomplished without, at least, any *permanent* injury to the horse. The horse having once reached this condition can easily be held there during the open season, for gallops of this kind, by systematic exercise and care, and with probably one good gallop per week.

OUTLINE OF A SINGLE RANK MOVEMENT SYSTEM FOR CAVALRY.

Adapted to a Two Rank Line.

By Brigadier General F. K. WARD, U. S. Army, Retired.

IN a short article by me which appeared in a recent issue of the Cavalry Journal, the idea was advanced that, for cavalry mounted, a two rank line as there described, would be stronger than a double rank and that since a double rank movement system does not lend itself to the formation of such a two rank line while a single rank system does, we should hold a single rank movement system for our cavalry service. The purpose of this article is to submit to the judgment of the cavalry service an outline of a single rank system which it is believed would be well adapted to the purpose. Without going to the length of writing out the system in full, enough of the details will be given to place it in its entirety clearly before the mind and enable officers to form a jugdment satisfactory to themselves regarding it. This statement is made because it is recognized that the men who will have to use the system which is finally adopted, who may have to stake their reputations and their lives upon it, should have the first and last say about it while it is under consideration and that with them should rest the final decision regarding any system which may be proposed.

Legislation on any subject relating to the army is very difficult to obtain and when we ask for it we can never be sure what we will get, because we can never go to Congress unanimous as to what we want. The system here proposed can be put into operation without any legislation. It requires but one change in the present organization and that is one for which legislation is not necesary, namely: That the

maximum strength of a troop be fixed at about seventy-two enlisted men.

Following what was formerly the usage in our own and is still the usage in all the large foreign armies, we will, in the system about to be described, call the smallest tactical unit a squadron. It will be made up of two troops united to form the squadron. That gives us a regiment composed of six squadrons. There has been considerable discussion as to the best size for a regiment. Some put it at four, some at six, and some at eight squadrons. In the European services, I believe six is the maximum and four the minimum. Without attempting to decide which is best, we will consider a regiment of six squadrons because our present legal organization of twelve troops for the regiment gives us that number by uniting two troops to form a squadron. The system which follows is equally well adapted to a less or greater number of squadrons.

THE SQUADRON IN CLOSE ORDER.

The formation of the squadron in line is shown in Figure I. It consists of two ranks and has a front of sixty-four. The distance between the ranks is platoon distance. Each

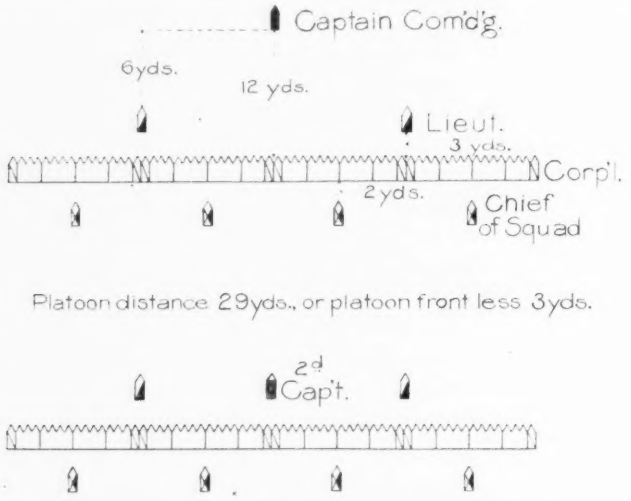


FIG. I.

rank is divided equally into two platoons and each platoon into two squads. The drawing is to scale and all intervals and distances are noted in figures. All the details of the formation can be better understood from the figure than from a description in words. The chiefs of squad are placed in the line of file closers in order that they may be able to supervise the ranks efficiently, keep them closed, correct faults of alignment, etc. When the squad is detached, as in extended order for instance, the natural place for the chief of squad would be in front of and leading it, except while it is deployed as skirmishers. By executing either fours right or platoons right forward fours right, the squadron is formed into what might be called either a line of fours or a double column of fours. The designation, double column of fours, is used here. In Figure II the squadron is shown in double cloumn of fours, intervals and distances noted in figures as in Figure I. It will be noticed that no guidon is shown in either figure. The

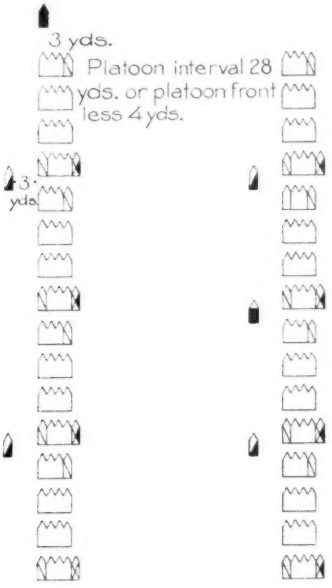


FIG. II.

omission is intentional. The guidon comes down to us from a time when it was considered indispensable to post guides in forming lines in the regiment. By the system here proposed, the need for posting guides at any time for any purpose is entirely done away with. The guidon would therefore no longer be needed. Unlike the regimental colors, it never had any significance. It has always been merely a marker. Should it be thought best to retain it, the provision for it would be precisely the same as in our present drill regulations.

In this system it is proposed that the march, both in line and in column, shall always be by the method of leading; following in trace it is called in our present drill regulations. Consistently and thoroughly applied, this method completely does away with the need for posting guides in forming line in the regiment, gives the squadron commander very much more effective and more accurate control of his squadron both while it is in motion and while at a halt and, most important of all, it is by far the most effective method for the advance to the attack and for the charge. The method is as follows:

Take first the march of the squadron in line. The squadron commander leads the squadron from his position in front of the center usually, because with the guide center the march is easier for the men in one rank and the rank is kept better closed and in better alignment. For short distances he may, for a special purpose, lead from a position in front of either flank, lead by a flank it is called; for instance, when forming line in the regiment, to bring the squadron up to the line with the proper interval. He is placed twelve yards in front of the rank to enable the men in the leading rank to see him at all times by glancing toward him without turning the head. By his own motion and without any commands, he controls the direction, gait and speed of the squadron. He designates the center guide, usually one of the non-commissioned officers in the center of the rank.

The second captain designates the center guide of and leads the second rank from a position in the line of the chiefs of platoon, by the center or by a flank conforming to the position taken by the squadron commander. He maintains

from the leading rank a distance that will give the second rank platoon distance. The reason given for placing the captain commanding twelve yards to the front does not obtain in the case of the second captain. The men in the second rank receive warning from the rank in front, of changes in the speed or direction and if the second captain were placed twelve yards to the front he would, when the squadron became much reduced in strength, have to move too close to the leading rank.

The platoon commanders of the leading rank keep approximately in front of the centers of their platoons and as accurately as possible six yards less advanced than the squadron commander. They mark a line from which the men in the rank must keep three yards in rear. The platoon commanders of the second rank move abreast with the second captain keeping approximately in front of the centers of their platoons, thereby marking a line from which the men in that rank must keep three yards in rear.

The guide in the leading rank follows in the trace of the squadron commander, maintains from him as accurately as possible the distance of twelve yards from head to croup, and conforms promptly to all changes by him in the gait and the speed. The guide in the second rank follows in the trace of the second captain, maintains from him the distance of three yards from head to croup, and conforms promptly to all changes by him in the gait and the speed.

The men in the ranks touch and dress toward the guide whose position is continuously shown by the position of the squadron commander and the second captain. No command for a guide would be needed and none should be given. They must never pass the line marked by their platoon commanders. Those in the leading rank observe the squadron commander constantly in order to be able to conform promptly, easily and in good order, to changes by the guide in the direction, gait or speed taken from the squadron commander. Those in the second rank observe the leading rank so as to be able to change the direction, gait or speed in time with their own guide.

The file-closers, and especially the chiefs of squad, must be unremitting in their attention to the ranks, keeping them closed, correcting faults of alignment, etc.

When the squadron is in line at a halt and the squadron commander is in his place in front of the center, a movement forward or back by him (in placing himself accurately on the line of captains in forming line or rectifying the alignment in the regiment, for instance) should carry the squadron forward or back without command and the ranks should dress without command immediately on reaching position.

The squadron in double columns of fours is led by the squadron commander from his place three yards in front of the guide of the leading four of either the right or the left column. The column in front of which the captain commanding places himself is thereby designated as the directing column, guide column would be a better term. No command for a guide is needed and none should be given. The guide of the leading four follows in the trace of the captain, taking the gait and speed from him. The other column regulates by the guide column and maintains its position with respect to it. To avoid obstacles, the interval between the columns would be increased or diminished without command. It may be closed entirely if necessary, or the column, not the guide column, may drop back by direction of the second captain and follow the guide column through a very narrow opening. In all such cases the normal formation should be resumed without command as soon as the obstacle is passed, increasing the gait for that purpose if necessary.

When the squadron is drilling alone, the squadron commander may need to be elsewhere than in place to lead. In such case the second captain should take his place as squadron leader. The squadron should be thoroughly habituated to that method of marching and to that end should never be marched by any other.

In close order the changes of formation by the squadron alone or in the regiment are few and very simple. It is believed that the turn by subdivisions in line as prescribed by our present drill regulations, should be abandoned and that the old wheels on a fixed and a moveable pivot should be re-

turned to. It (the present turn) is not as good a movement in practice as it is in theory. And the old wheels were excellent practice for the march in line which is such an important movement for cavalry that anything which contributes to proficiency in it should be retained. It is therefore proposed in this system to use the wheel instead of the present turn. Leaving out of consideration the provisions that must be made for forming a road column (column of fours or twos) and for closing up the road column for camping or maneuver purposes, the squadron in close order whether by itself or in the regiment will always be in line or in double column of fours. In stating the movements and changes of formation considered necessary or desirable, the movement is stated first, then the commands for it are given followed by only such explanation regarding the execution as may be needed by one already familiar with our present drill regulations. In many cases no explanation is needed, the commands alone being sufficient for a thorough understanding of the movement.

The Squadron in Line:—

To gain ground to the right or left: Right (or left) oblique, March: Forward, March.

To change direction: The squadron commander commands, Right (or left) turn, (or half turn), March: Forward, March. This turn is a wheel on a moveable pivot. At the first command of execution the leading rank wheels to the right on a moveable pivot. If from a halt or walk, the center guide moves at a walk. The gait is decreased toward the pivot trooper who moves on an arc of a circle having a radius of half the front of the squadron The gait is increased toward the marching flank and the trooper on that flank moves on an arc of a circle having a radius one-half greater than the front of the squadron. The touch is toward the pivot, the dress toward the center. If moving at a trot or gallop, the trooper on the marching flank moves at the original gait and the touch is toward the pivot, the dress toward the marching flank. The second rank continues in the original direction to the turning point and there wheels

in the same manner as the leading rank by the same commands given by the second captain.

This is the only case in this system of a wheel on a moveable pivot. It is not a movement much used in changes of formation. The complete wheel would seldom be used except in ceremonies. The partial wheel might be very useful in action.

To form line facing to the rear: Fours right(or left) about, March. The file closer pass between the fours to their new places. The chiefs of platoons move round the flanks.

The squadron commander takes position in front of and immediately commanding the new front rank. The second captain takes position commanding the new second rank.

These rules regarding the positions of the squadron commander and the second captain govern in all formations of the squadron into line.

To form line facing to a flank: For this there are two methods.

First Method: The squadron commander commands, Platoons right (or left) wheel, March. The platoons wheel on a fixed pivot touching toward the pivot and dressing toward the marching flank. If the movement is to a halt the chiefs of platoon halt their platoons at the completion of the wheel. If not to a halt the squadron commander commands: Forward, March, as the platoons join. This is the only case of a wheel on a fixed pivot in this system.

Second Method: The squadron commander commands, Platoons left (or right) forward, fours left (or right), March; and as the columns join, Fours right (or left), March.

There is a third method which perhaps might be preferred for all purposes except ceremonies: For instance, to the right, the squadron commander commands, Fours right, platoons left front into line, March.

To form double column of fours to the front: The squadron commander commands, Platoons right forward, fours right (or left forward, fours left), March.

To form double column of fours to a flank: Fours right (or left), March.

To form double column of fours to the rear: Fours right (or left), platoons column right (or left), March.

To close distance: The squadron commander commands, Close distance, March. If at a walk the leading rank halts at the command march; the second rank is halted by the second captain at the distance of twelve yards from the leading rank. If moving at a trot, the leading rank comes to a walk at the command march and the second rank take the walk at the specified distance by command from the second captain.

This change may be made at an increased gait.

The distance having been closed, to take full distance: The squadron commander commands, Take full distance, March, or Trot, March.

The last two changes find application only when the squadron is in the regiment.

The Squadron In Double Column of Fours:—

To change direction: The squadron commander commands, Right (or left) turn (or half turn), March. This movement is always executed at an increased gait. At the command march the right column executes column right and becomes the guide column during the turn. The left column at the command march increases the gait one degree, turns to the right moving on an arc of a circle of such a radius as to keep platoon interval from the guide column and continues at the increased gait until its leading four comes abreast with the leading four of the guide column at which time the original gait is resumed and the guide becomes the same as before the change of direction began. If marching at a gallop when the turn is ordered, the outer column must move at the extended gallop during the turn.

To form line to the front: For this there are two methods.

First Method: The squadon commander commands, Platoons right (or left) front into line, March. The execu-

tion by this method is always at an increased gait without indication of gait in the command.

Second Method: Platoons column right (or left), March, followed as the columns join by Fours left (or right), March.

To form line to the rear: Platoons column right (or left) March, followed by Fours right (or left), March, as the columns join.

To form line to a flank: Fours right (or left), March.

To form double column of fours to a flank: Platoons column right (or left), March.

To form double column of fours to the rear: Fours right (or left) about, March.

In the direction for the charge there would be embodied a paragraph in effect as follows:

When the squadron is in line advancing to the attack, the second captain as soon as the rapid gait is taken up, will permit the leading rank to gain on the second until the second has halting distance. If the shock does not take place the second rank will be held as a reserve or will join in the pursuit as circumstances may determine.

The Squadron Being in Line, or in Double Column of Fours:

To form a road column: The squadron commander commands, Column of fours to the (right, left, front or rear), "Such" Troop leading, March. At the preparatory command the captain of the designated troop gives the proper preparatory commands, "Such" Troop forward, or fours right, or platoons right forward fours right, or platoons column right, etc., depending upon the formation the squadron is in, and repeats the command march. The captain of the other troop moves his troop following in column of fours at the distance of nine yards.

From column of fours, column of twos would be formed in the usual manner.

The Squadron Being In a Road Column (Fours or Twos):

To form double column of fours: The squadron commander commands, Double column of fours, right (or left) oblique, March. If in column of fours at a walk the captain

of the leading troop halts his troop. The captain of the rear troop obliques his troop to the right until platoon interval is gained, then moves it forward and halts it when abreast with the other column. If in column of twos the leading troop commander forms column of fours and halts his troop, The other troop commander forms column of fours as his head of column reaches its place.

In either case the movement may be executed at an increased gait, that is without halting, by the command trot or gallop preceding the command march.

The Regiment.

The regiment is composed of six squadrons. It is divided into two wings. The squadrons are designated by number from right to left when in line, from front to rear when in column. The numbers are changed when the regiment is faced about. The wings are designated right and left when in line, leading and rear when in column. The interval between squadrons in line is eight yards. The interval between wings in line is the same as between squadrons. The position of the colonel in line is in front of the center and twenty yards in front of the line of captains. He may go wherever he can best command the regiment. The lieutenant colonel accompanies the colonel, on his right with sufficient interval for freedom of movement; he may be assigned to any particular duty. The adjutant accompanies the colonel in a corresponding position on his left. The position of the senior major is ten yards in front of the line of captains and in front of the center of the right wing. He supervises the execution of movements in his wing but does not directly command the wing unless it is by itself, as in column of wings for instance. The second major occupies a corresponding position with respect to the left wing. The majors are not restricted to the positions assigned them. They may go where they can best perform their duties.

The regiment may be formed on a flank squadron or on the center squadron. Take for instance a formation on the right squadron.

The adjutant and sergeant major mark the line. They take positions on the line of captains, facing each other and squadron front apart, the adjutant at the point of rest. The captain commanding the first squadron brings his squadron on the ground in double column of fours, leading it in this case by the right column. He changes direction and moves up to the line from the rear, the turn being executed at such a point that when he, after the turn, moves on a point a few yards in front of the adjutant, the direction of his line of march is perpendicular to the line marked by the adjutant and sergeant major. He forms platoons left front into line in time for the formation to be completed thirty yards from the line. Then leading by the right up to the line, he halts the squadron when he is three yards from the indicated line and placing himself in front of his center guide, he moves up and places himself on the line. He is confirmed in his alignment by the adjutant. His movenemnt up to the line of captains after having taken position in front of the center, places the squadron on the line. The captain of the second squadron places his squadron on the line in the same way with the single exception that instead of having the adjutant to direct his march by as he approaches the line, he has to so direct his march as to give his squadron the interval of eight yards from the first squadron. He is confirmed in his position on the line of captains by the adjutant. The adjutant and sergeant major then leave their positions and the captains of the squadrons already formed mark the line of captains for the completion of the formation. The other squadrons form in the same manner as the second, each captain aligning himself on the line of captains.

This is the method in detail for forming line in all successive formations for the regiment into line.

In first forming the regiment, if the formation is on the center, the adjutant at the point of rest in front of the left of the right center squadron, aligns the captain of that squadron and then turns left about, moves squadron front toward the left, then again left about and places himself on the line facing toward the right. From this position he aligns the captain of the left center squadron. Two captains being

established on the line, the adjutant and sergeant major retire. If considered desirable, as for instance in forming for ceremonies, the adjutant would remain and align all of the captains as they came on the line, whether the formation was on the center or on the flank squadron.

The following general directions are without exception:

In all cases when wheeling fours right or left from line into column or from column into line, if it is the intention to halt as soon as the fours have completed the wheel, the preparatory command for the halt may be omitted. In such cases the command halt should be given immediately following the command march. This applies in the squadron as well as in the regiment.

All successive formations of the regiment into line or into line of fours are to a halt. In such cases if the trot or gallop is sounded it applies only to the rear squadrons.

In successive formations into line or into line of fours, the squadrons are moved the greater part of the distance in double column of fours, each squadron commander leading by the column nearest the point of rest. The march should be so conducted that after the turn to move up to the line there will remain enough distance to form platoons front into line thirty yards from the line after which the squadron is led by the flank nearest the point of rest. After halting just in rear of the line no correction of interval will be permitted. The guide of the leading rank does not move up to the line until the alignment of the captain is completed; he then moves up to a position twelve yards less advanced than the captain but without attempting to place himself directly in rear of him if he has taken position not exactly in front of the guide, this to avoid any necessity for passaging to the right or left.

THE MARCH IN LINE.

The colonel commands, Forward, March, Guide center (right or left). The command for the guide is for the captains only: It designates the guide captain. When the regiment is by itself the guide is habitually center because with the guide there the march is easier and the alignment and intervals can be better maintained. When no objective

is indicated to him by the colonel, the guide captain selects an objective in his line of march on which to move. If the colonel desires to lead the regiment, he places himself any desired distance in front of the guide captain who maintains that distance and follows in the trace. The majors move abreast with the colonel and each keeps approximately in front of the center of his wing. When the colonel does not lead, the majors move in their prescribed positions. The colonel may designate the lieutenant colonel or a major to lead. In advancing to the attack, the field officers in front of the line would take places in the line of captains.

The squadron commanders lead their squadrons by the center. They take the alignment from the guide captain, that is they move abreast with him and they take the interval from the captain next to them on the side toward the guide, glancing occasionally at their interval in the leading rank to verify the correctness of their judgment. While they take the alignment principally from the guide captain they also take cognizance of the general line as shown by the positions of the other captains, in verification of their own estimate or judgment and to avoid being too far out of the general line.

The guides in the rank follow in the trace of their leaders and maintain their prescribed distances from them. They have no other duty.

The second captains and chiefs of platoon maintain a general supervision over the ranks and see that the file closers attend to their duties.

The file closers must be unremitting in their attention to the ranks, keeping them closed and correcting faults of alignment, etc.

Too much practice cannot be given in the march in line and after sufficient proficiency has been reached, the practice should be principally at rapid gaits including extended gallop, and for considerable distances.

EVOLUTIONS OF THE REGIMENT.

The Regiment in Line:

To gain short distance to the right or left: The colonel commands, Right (or left) oblique, March: Forward, March.

To face to the rear: The colonel commands, Face to the rear, fours right (or left) about, March. The squadron commanders halt their squadrons as the fours join.

To march to the rear: The colonel commands, Fours right (or left) about, March, Guide center (right or left).

To change front to the right or left: Accomplished by forming double column of fours and then executing front into line.

To change front half right or half left: The colonel commands, Change front half right (or half left), March. By the proper commands from the squadron commanders, the right squadron makes a half turn to the right, moves forward thirty yards and halts; the other squadrons break into double column of fours to the front, platoons right forward fours right when the change is to the right, move forward, make a half turn to the right, then forward to the new line, forming platoons left front into line thirty yards from the line. The adjutant and sergeant major go to the point of rest to define the line it is desired to occupy. The change of front may in this way be made greater or less than forty-five degrees as may be desired.

To form line of fours: The colonel commands, Platoons right (or left) forward, fours right (or left), March; Guide center, (right or left).

To form column of squadrons: The colonel commands, Platoons right (or left) wheel, March; Squadrons, Halt or Forward, March, Guide center (right or left). Or Platoons left (or right) forward, fours left (or right), March, followed as the columns join by, Fours right (or left), March; Guide center (right or left).

To form double column of fours: The colonel commands, Fours right (or left), March; Halt or Guide (right or left).

To form line of wings in double column of fours: Double column of fours is first formed and the colonel then commands, Wings column right (or left), March, Guide (right or left).

To form column of wings to the front: The colonel commands, Column of wings, right (or left) wing, Forward, March;

Guide center (right or left). At the preparatory command from the colonel, the major of the left wing commands Fours right, and repeats the command march. At the command march, the right wing moves forward and the left wing moves by the flank until in rear of the leading wing the major forms line to the left and repeats the announcement of the guide.

To form column of wings to a flank: Accomplished by forming double column of fours and executing wings front into line.

To advance in line with one or both flanks in echelon: The colonel commands, Forward, "Such" Squadrons or Squadrons in echelon, March, Guide center (right or left). The designated squadrons remain at a halt until each has squadron distance from the line or from its preceding squadron, distance measured in the direction of the march. In this manner three squadrons from one flank, or one from one flank and two from the other can be put in echelon.

The regiment marching in line, to put one or more squadrons in echelon: The colonel commands, "Such" squadron or squadrons into echelon, March. At the command march the designated squadrons decrease the gait or halt until they have their echelon distance.

To bring squadrons in echelon into line: The colonel commands, Rear squadrons into line, March, or Trot (or gallop), March.

To form the entire regiment in echelon: The colonel commands, Form echelon, Right (or left) squadron forward, March.

The regiment in echelon, to form line: The colonel commands, Form line on "Such" squadron, March. If in motion the designated squadron halts at the command march. The rear squadron move forward to the line and halt. Those in advance of the designated squadron wheel about by fours, move back, wheel about by fours and are placed on the line.

The echelon is considered a line formation and the squadrons and wings are designated from right to left without regard to which flank is in advance.

The Regiment in Line of Fours:

The line of fours moves forward, obliques, faces to the rear, and marches to the rear by the same command and means as the regiment in line. The squadrons are led by the column nearest the guide.

To change front: The colonel commands, Change front right (or half right, left or half left), March. The right squadron turns to the right, moves forward thirty yards and halts. The other squadrons move forward, incline to the right, make a partial turn to the right when in rear of their places and move up to the line.

To form line: The colonel commands, Platoons right (or left) front into line, March.

To form column of squadrons: The colonel commands, Fours (right or left), March.

To form double column of fours: The colonel commands, Platoons column right (or left), March, Guide (right or left).

To form in mass on a flank squadron: Column of squadrons is formed, distances are closed and fours wheeled right or left into mass.

To form in mass on an interior squadron: The colonel commands, Form in mass on "Such" squadron, fours left and right, March. At the command march the designated squadron and all to its right wheel fours left; the designated squadron immediately closes distance, wheels fours right and halts. The other squadrons close distance in succession as they close on the preceding squadron, wheel fours right and halt. The squadrons which wheeled fours right close in a similar manner on the designated squadron, wheel fours left and halt.

The Regiment in Double Column of Fours:

The regiment in double column of fours moves forward, obliques and moves to the rear by the same commands and means as in line. The guide of the column may be right or left. The distance between squadrons is nine yards.

To change direction: The colonel commands, Column right (or left), March. At the preparatory command the

leading squadron commander commands right turn, repeats the command march and that squadron turns to the right. By the sme commands the other squadrons turn as they come to the turning point.

To form front into line: The colonel commands, Right (or left) front into line, March. The leading squadron executes platoons right front into line, moves forward thirty yards and is placed on the line. At the preparatory command from the colonel, the other squadron commanders command platoons column right. At the command march all the rear squadrons form double column of fours to the right. Each squadron commander leads by his left column and as he reaches a point directly in rear of the position the left of his squadron will occupy in line, makes a turn or partial turn to the left, bring his platoons right front into line, leads by the left up to and places his squadron on the line as previously explained. In moving to the point in rear of their positions the squadron commanders incline to the left, especially those farthest from the new line, taking care to leave themselves after the partial turn, enough distance for the formation of their squadrons into line before reaching the new line.

To form right and left front into line: The colonel commands, Right and left front into line, March. The leading wing executes right front into line and the rear wing executes left front into line on the left of the leading wing.

If the command from the colonel is left and right front into line, the leading wing forms left front into line and the rear wing front into line on the right of the leading wing.

To form front into line of fours: The commands of the colonel are "into line of fours" instead of "into line." The execution is the same as into line except that the squadrons are placed on the line in double column of fours instead of in line.

To form line to the rear: Accomplished by an about by fours and then front into line as desired.

To form line to the right or left: Fours right (or left), March.

To form line of fours to the right or left: The colonel commands, Platoons column right (or left), March.

To form on right or on left into line: The colonel commands, On right (or left) into line, March. The leading squadron turns to the right, forms platoons left front into line, moves forward thirty yards and halts. Each of the other squadrons passes beyond the preceding squadron, turns to the right and is formed on the line in the same manner as the first squadron.

By inclining the head of column to the right or left before ordering the formation, the line may be given any desired direction. In such case the rear squadron commanders as they come in rear of the right of the line should be careful to incline so that they will have after their turn, the necessary distance for their formation on the line.

To form on right or left into line of fours: Accomplished by the same modifications as in front into line of fours.

To form line by two movements: Take for example a case where a part of the regiment has executed a change of direction to the right: The regiment is first halted by the colonel as one of the suqadrons is about to begin its turn. The colonel then commands, Fours left, Rear squadrons left front into line, March, Halt. At the command march the squadrons which have changed direction wheel fours left and halt in line at the command halt. At the command rear squadrons left front into line, the captain of the leading rear squadron commands, Platoons column left, and repeats the command march; when his rear fours have the eight yard interval from the left of the preceding squadron, he forms line to the right, moves his squadron up and places it on the line. The execution by the other rear squadrons is the same as left front into line from double coulmn of fours.

To form column of squadrons: The colonel commands, Platoons right (or left) front into line, March.

Or by the other method, Platoons column right (or left), March, and then as the columns join, Fours left (or right), March.

To form column of wings in line, or in line of fours: The colonel commands, Wings right (or left) front into line, or line of fours, March.

The Regiment in Column of Squadrons:

Squadron distance is platoon front plus five yards. The regiment in column of squadrons moves forward, obliques and moves to the rear by the same commands and means as in line.

To change direction: The colonel commands, Column right (or left), March. At the commands march the leading squadrons turns to the right. The other squadrons turn to the right as they come to the turning point.

To form front into line: The colonel commands, Right (or left) front into line, March. At the command march the leading squadron moves forward thirty yards and halts. At the preparatory command the other squadron commanders command fours right and at the command march all the rear squadrons break into double column of fours to the right. The remainder of the execution is the same as in front into line from double column of fours.

With the same modifications as from double column of fours, line to both fronts would be formed.

To form line to the rear: The column is faced to the rear and front into line as desired is then executed.

To form line to the right or left: Accomplished by the same commands and means as for the squadron in line.

To form line of fours to the right or left: Fours right (or left), March.

To form on right or on left into line: Double column of fours is first formed with the guide right (or left), and on right (or left) into line is then ordered.

To form double column of fours: Platoons right forward, fours right (or left forward, fours left), March, Guide (right or left).

To form column of wings: Wings right (or left) front into line, (or into line of fours), March.

To form close column: The colonel commands, Close distances, March. The leading squadron closes distance at the command march and halts. The other squadrons close distance as they reach their places.

This may be executed at an increased gait.

In close column the distance between ranks and between squadrons is twelve yards. The position of the squadron commander is in line of the chiefs of platoon of his leading rank.

The Regiment in Column of Wings:

To form line to the front: The colonel commands, Form line, leading wing fours right (or left), March. The leading wing moves by the flank until it gains the necessary interval from its original position: The major then commands, Fours left (or right), March, Halt. At the preparatory command from the colonel, the major of the rear wing commands, Forward, and repeat the command march, adding Guide right. The major halts the wing on line with the leading wing.

To form line to the rear: The regiment is faced to the rear and line is then formed to the new front.

To form line to the right or left: The wings are first formed into double column of fours and front into line then executed.

To form double column of fours: The wings are first formed into double columns of fours and the colonel then commands, Wings column right (or left), March.

The Regiment in Close Column:

The close column moves forward to the rear, changes direction, and obliques by the same commands and means as a column at full distance.

To form in mass: Fours right (or left), March.

In the mass the interval between the columns of a squadron and between squadrons is eleven yards.

To take full distance: The column is first halted and the colonel then commands, Take full distance, March.

To form front into line: The colonel commands, Right (or left) front into line, March. At the command march the leading squadron first takes full distance; then moves forward thirty yards and halts. At the preparatory command the other squadron commanders command fours right. At the command march the rear squadrons move to the right: As each squadron gains its interval from the squadron next it toward the point of rest, the squadron commander forms line to the left, immediately takes full distance, moves forward and places the squadron on the line.

The formation may be to both fronts by the same principles and modifications of the commands as from column at full distance.

To form front into line of fours: Each squadron after taking distance, forms double column of fours, platoons left forward fours left when the movement is right front into line, and is placed on the line in that formation.

To form on right or left into line: The column is first halted. The colonel then commands, On right (or left) into line, March. At the command march the leading squadron takes full distance, executes platoons right forward fours right and completes the movement as from double column of fours. As soon as it has room each rear squadron executes as prescribed for the leading squadron, making its turn beyond where the preceding squardon turned.

If the command is into line of fours, the execution is the same except that the squadrons are placed on the line in double column of fours instead of in line.

The Regiment In Mass:

The regiment in mass obliques, moves forward, faces to the rear, and marches to the rear, by the same commands and means as the regiment in line.

To change front: The colonel commands, Change front right (or half right, left or half left), March. The right squadron makes a complete or partial turn to the right, moves forward thirty yards and halts. The other squadrons move forwad make a partial turn to the right, then forward again and are placed on the line.

To form line facing to the right or left: The colonel commands, On right (or left) into line, March. The right squadron executes fours right, takes full distance, moves forward thirty yards and halts. The other squadrons move forward and in succession execute fours right, take full distance and moves forward to the line.

To form line to the front on a flank squadron: Close column is formed, full distances are taken and line then formed as desired.

To form line to the front on an interior squadron: The colonel commands, Form line on "Such" squadron, fours right and left, March. At the command march, the designated squadron and all to its right wheel fours right, and all except the designated squadron move forward: The designated squadron halts as the fours join, takes full distance, wheels fours left, executes platoons right front into line, moves forward thirty yards and halts. The next squadron as soon as it has full distance from the designated squadron takes full distance and forms on the line as prescribed for the designated squadron. Similarly for the other squadrons in succession. The execution for the squadrons which wheeled fours left is similar substituting left for right and right for left.

When the squadron next the designated squadron toward the left, wheels fours right after taking distance, it finds itself with an interval of thirteen yards from the designated squadron. The interval would be corrected by obliquing five yards to the right during the movement forward to the line. The other squadrons to the left would make the same oblique.

To form line of fours to the front on a flank squadron: The method is the same as in forming line except that after full distances are taken, the colonel forms line of fours to the right or left.

To form line of fours to the front on an interior squadron: The colonel commands, Form line of fours on "Such" squadron, fours right and left, March. The execution is the same as into line except that as soon as full distances are taken the

fours are wheeled to the left or right and the squadrons are halted.

The Regiment in Any Formation in Close Order:

To form a road column: The colonel commands, Column of fours to the (right, left, front or rear), First (or Sixth) squadron leading, March. The captain commanding the designated squadron forms column of fours in the direction ordered. The other squadrons follow in column in their turn.

Column of twos would be formed in the usual manner from the column of fours.

To close into the maneuver column from a road column: The colonel commands, Double column of fours, right (or left) oblique, March or Trot, March. Executed by each squadron in succession as in "The Squadron," the squadrons closing to nine yards distance.

The regiment being in a road column, to form line quickly to the front, the colonel sends by messengers through out the column the commands, Right (or right and left or left and right) front into line, Trot (or gallop), March. The squadron commanders take the increased gait, form double column of fours at the first opportunity and form line in the same manner as from the regiment in double column of fours.

For convenience in getting a comprehensive view, the following list of all the movements and evolutions embodied herein is given:

THE SQUADRON IN CLOSE ORDER.

The March in Line.

The Squadron in Line:

To oblique to the right or left.
To change direction.
To form line to the rear.
To form line to a flank.
To form double column of fours to the front.
To form double column of fours to a flank.

To form double column of fours to the rear.
To close distance.
To take full distance.

The Squadron in Double Column of Fours:

To change direction.
To form line to the front.
To form line to the rear.
To form line to a flank.
To form double column of fours to a flank.
To form double column of fours to the rear.

The Squadron in Line or in Double Column of Fours:

To form a road column.

The Squadron in a Road Column (Fours or Twos):

To form double column of fours.

THE REGIMENT.

To Form the Regiment.—General Directions.

The March in Line.

The Regiment in Line:

To oblique.
To face to the rear.
To march to the rear.
To change front to the right or left.
To change front half right or half left.
To form line of fours.
To form column of squadrons.
To form double column of fours.
To form line of wings in double column of fours.
To form column of wings to the front.
To form column of wings to a flank.
To advance in line with one or both flanks in echelon.
The regiment marching in line, to put one or more squadrons in echelon.
To bring squadrons in echelon into line.

To form the entire regiment in echelon.
The regiment in echelon to form line.

The Regiment in Line of Fours:

To move forward, oblique, face to the rear, and to march to the rear.
To change front.
To form line.
To form column of squadrons.
To form double column of fours.
To form in mass on a flank squadron.
To form in mass on an interior squadron.

The Regiment in Double Column of Fours:

To move forward, oblique, and move to the rear.
To change direction.
To form front into line.
To form right and left front into line.
To form front into line of fours.
To form line to the rear.
To form line to the right or left.
To form line of fours to the right or left.
To form on right or on left into line, and into line of fours.
To form line by two movements.
To form column of squadrons.
To form column of wings in line or in line of fours.

The Regiment in Column of Squadrons:

To move forward, oblique, and move to the rear.
To change direction.
To form front into line.
To form front into line of fours.
To form line to the rear.
To form line to the right or left.
To form line of fours to the right or left.
To form on right or on left into line.
To form double column of fours.
To form column of wings.
To form close column.

The Regiment in Column of Wings:

To form line to the front.
To form line to the rear.
To form line to the right or left.
To form double column of fours.

The Regiment in Close Column:

To move forward, oblique, move to the rear, and to change direction.
To form in mass.
To take full distance.
To form front into line.
To form front into line of fours.
To form on right or on left into line or line of fours.

The Regiment in Mass.

To move forward, oblique, face to the rear, and march to the rear.
To change front.
To form line facing to the right or left.
To form line to the front on a flank squadron.
To form line to the front on an interior squadron.
To form line of fours to the front on a flank squadron.
To form line of fours to the front on an interior squadron.
To form a road column.

The Regiment in any Formation in Close Order:

To form road column.

The Regiment in a Road Column:

To form the maneuver column.
To form front into line.

It may be that some of the evolutions given could properly be omitted on the ground that they would not be likely to find application in service and that there are some desirable and likely to be useful which are not given. Such defects could easily be remedied. Enough movements and evolutions are given to show clearly the adaptability and capabilitites of the system.

It will be noticed that no provision is made for forming a column of platoons. Such a column would be twice as long as the front in line. It would, therefore, be useless for maneuver purposes and the only possible use for it would be in ceremonies. The column of squadrons and the double column of fours, the latter where there is not room enough for squadron front, would be sufficient for all purposes.

The double column of fours is the maneuver column and it serves that purpose most efficiently. Its length is the same as the front in line. It differs materially from the old double column of fours (Column of eights) and, it is believed, would be found much superior to it, not only for maneuver purposes but also for every other purpose for which a double column of fours would be used.

It will be seen that in this system the number of oral commands is reduced to a minimum. This results largely from the thorough application of the principle or method of leading. For instance, the regiment executing front into line; after breaking out of the column into double column of fours the squadron commander need not give a single oral command. No command is necessary for making a partial or even a complete turn toward the side of the guide column, the platoons can be brought front into line at the proper time by a saber signal, and the halt can be by the same means. No directions of any kind are needed for direction, gait or speed. And with all the squadron is placed on a line with an accuracy and ease not attainable by formal commands.

The subjects of extended order and action dismounted are not touched on in this article, but that is not because their importance is underestimated. It is necessary, indispensable, to first arrange the close order system. The provisions for extended order and for dismounted action must then be developed from the close order system as a basis. The development to fit this system would not differ in any essential particular from what is in our present drill book. Dismounted action for cavalry has become more amd more important of late years and it will not become any less important in the future. With this system it would be possible to provide for dismounted action from any formation, line,

column, close column, mass, or extended order, by methods with which we are already familiar.

A squadron which is a tactical unit only and is made up of two troops which are separate administrative units, is not an ideal organization. It would doubtless be better to make the squadron the smallest administrative unit also. But the size of the squadron here given is believed to be the best. The troops should be permanently squadroned on the same principle as they now are. A squadron would need a permanent designation: A natural one would be to use the two letters of the troops composing it, "AB" squadron, "CD" squadron, "EF" squadron, and so on.

THE RESTRICTED CLIMATIC ENVIRONMENT OF HORSES.

By Lt. Colonel CHAS. E. WOODRUFF, Medical Corps, U. S. Army.

FOR many years biologists have been calling attention to the fact that each species or variety of living thing is confined to a restricted environment, and that it perishes if removed to a different climate against whose adversities it has no natural protection, but that if the change is not great or is made slowly, there may be fit variations whose survival creates a new species adjusted to that place. For a long time, anthropologists would not believe this law applied to man, who apparently could migrate safely wherever he pleased, but later observations showed that though our intelligence enables us to escape some adversities of a place for which we are unfit, we are merely postponing the inevitable extinction.

To emphasize the law of adjustment, European anthropologists have recently been calling attention to the fact that each variety of the domesticated horse is also adjusted to a very limited climatic environment. We have been deceived by its apparent ability to survive anywhere and everywhere, but as a matter of fact, it is now discovered that in spite of our utmost endeavors to guard a migrated horse from lethal influences of its new home, the type will die out in time or change to another type. The rapidity of these changes, makes the horse an excellent subject to illustrate the law of adjustment; as we see in the diminutive Java ponies evolved by natural selection in a few centuries from pure-bred Arabians, or better still the tiny agile basuto ponies of the South African hill country evolved from the cast off Northern European stock of the Boers.

Some recently observed facts prove the prediction (U. S. CAVALRY JOURNAL, Sept., 1911) that it is impossible for us to breed up a military horse fit for campaigning in every climate to which our troops are sent, and the present effort in that line are sure to result in disastrous failure. For instance, I am credibly informed that the French cavalry took to the Boxer campaign of 1900, a lot of Arabian pure-breds, but the horses quickly died and the troops were then mounted on Mongolian ponies. Both kinds of horses have a black skin as a protection from excessive light, and white coat as a rule which, in the case of the Arab, is to reflect excessive heat, but in the Mongolian is to prevent radiation in winter like the polar animals in general. But the Arab has not been exposed to intense cold for some thousands of years and has not that furry hair of the Northern type, nor perhaps has he the same air passages to warm the air breathed in.* Of course if these

*In tropical man the nostril is open and large and the nasal cavities large so as to admit plenty of air, but in cold climates where the air is denser and less needed every respiration, the air passages are narrow and nose prominent to admit the current in a ribbon-like current easily warmed. There is some evidence that similar changes have occurred in the horse. I learn from Mr. R. W. Tully, who is breeding Anglo-Arabs at Arcadia, California, that the Arab has large open nostrils, straight nasal passages, and very large windpipe, while the habit of holding the head high and extended, converts the whole tube almost into a straight one offering no impediments to the air current. The northern horse has smaller nostrils and curved narrower nasal passages to warm the air, as in the Roman nose of the forest breed. This difference will fully acount for the fact that the Arab will retain his "wind" under strains which collapse the northern types. It will also fully account for the inability of the Arab to survive very cold air even when blanketed. He has not enough warming surface for the cold air breathed. He might be ideal in our southren States or Mexico, but he or the half-breed Anglo-Arab is unfit for our cold climates. There is some evidence also that the open nostril of the English thoroughbred or hunter is the reason that type will not thrive in bitterly cold climates where such types are worthless for our cavalry, leaving out the question of their delicate organization and need of shelter.

The Arab horse is also said to have much smaller stomach and intestine than other varieties, and thus able to survive on concentrated foods which will give indigestion to the types with large organs designed for less nutritious grasses and plants. In other words, wild species demand rough food and wastes the concentrated, but the higher the domestication the more must the food be concentrated for the rough food is undigested and wasted. The latter cannot "*rustle*" for themselves in campaign, the more primitive types thrive by it.

Mr. Tully has also worked out the enormous skeletal difference between the Arab and other breeds, which fully account for its long distance speed and endurance, but the details do not concern us here.

imported animals could have had warmed stables and proper blanketing they might have survived as plenty of other far more delicate animals do in our winter even when clipped. But, as pointed out by Carlos Guerrero, of Buenos Aires, in a most excellent article in the 1910 Proceedings of the American Breeders' Association, there are no stables in campaign and the proper military horse must be of a type that can live in the open with little or no shelter and no protection beyond a blanket.

My own investigations in this line have been exclusively as to the significance of coat and skin pigments, but there are numerous other characteristics which must be studied by horsemen themselves. Size, for instance, though seemingly a mere matter of feeding, is a far more vital matter, or there would not be such a great reduction in size in many tropical countries where the huge percherons of temperate Europe are wholly out of place on account of difficulty of keeping cool. In many other wide spread animals it is found that size increases from the tropics to the Northern edge of the temperate zone, but that in the arctics only the smaller animals can get enough food as in the case of the primitive Celtic pony which lives in the northwest corner of Europe, Norway, Iceland, Shetland, etc. Hill horses are always small, as large ones cannot climb. The Korean pony is much smaller than the Mongolian from which it springs, but its abliity to climb steep trails with a heavy pack is simply marvelous. The ass is small for both reasons—lack of food and origin in a rough country, and both the Korean pony and ass are invaluable pack animals in mountains that our big draft animals cannot climb at all.

Then there are such matters as shape of bones, size of heart, lungs, nostrils, digestive tube and many other requiring investigation of the experts, for all these points are of great survival value. Even the kind and amount of digestive fluids exert an enormous influence on an imported horse's ability to subsist on the forage of the country. These matters are of much importance in man, and must be in horses also. For instance, Albert Churchward states (*Brit. Med. Journal, May 20, 1911*) that the lower races of man have

large colons and caecums containing swarms of cellulose-digesting bacteria, and that they can really subsist on certain unhulled grains which pass through the intsetines of higher races unchanged. Through long ages of evolution, due to the use of the more economical prepared grains, which have more available nutriment per pound and per dollar's worth, there has been an enormous economy in our growth, and there has been a survival as fittest of those wothout the large organs necessary to digest rough food of less nutriments. We, therefore, cannot possibly subsist on the dietaries of lower races, a complete reversal of the old medical dogma to eat as the natives wherever we go.

There is no doubt that the higher evolved domesticated horses have passed through similar stages, and have long lost the power to digest the foods on which more primitive types thrived. The divergence between the horse and ass is so great as to be observed by every child, but the minor differences between breeds of domestic horses and between them and the wild stocks has not been given the attention it deserves. There are delicate types of European horses and their descendants in America, which require the most exquisite care in feeding and which would promptly die if turned out to forage for themselves, and this exists to a minor grade in all military horses. Their digestive powers limit them seriously and if taken to lands where the climate will not permit the growth of the grains and grasses by which their organs have evolved to their present state of adjust ment, then they nust be fed on foods from their place of evolution or domestication. Native foods demand native stock. The army which "lives on" an invaded country or buys its supplies there, must use the local stock or find themselves dismounted.

According to H. K. Bush-Brown, of Washington, D. C. (*Amer. Breeder's Magazine, Nb. 2, 1911*) the European draft animal is not bred up from ponies but is descended from a big forest species whose primitive fossils are known. It is one of the four families of primitive wild horses, and through subsisting on leaves and shrubs its skull is set at a right angle to the neck vertebra, while the Arab and plains types

have the head more in line with the neck. The big draft horses, therefore, are not fit to forage for themselves in a grazing country of short grass. The Arab in addition is the only horse with five lumbar vertebrae, the others having six, and this shortened back may partly account for the Arab's endurance under a heavy rider, and the unfitness of other types for similar work. But all these points must be left to the veterinarians to investigate, as our present purpose is with color.

In a recent trip through Japan and Korea, it was found that coloration is much more limited as to environment than was believed possible, but the facts are all explainable on the laws laid down in the article appearing in the September issue of the U. S. CAVALRY JOURNAL. It is there proved by numerous illustrations that pigment is for three distinct purposes which occasionally conflict so as to force a compromise partly serving both ends in a survivable way, but not prefect for either. These purposes are protection from light, heat and enemies. Color in the skin is almost exclusively to keep out the harmful light rays. When there is little or no coat of hair the black pigment serves a second purpose of assisting heat radiation in temperatures below body heat, but these animals cannot survive higher temperatures and cannot be exposed for any long period to the direct rays of the sun, as they die of thermic fever. The lighter hair colors are either to reflect heat in hot weather as in the Arab white horse or the yellow ponies, or is to prevent radiation of body heat in cold weather as in the Mongolian horse and arctic animals.

The dark colors are therefore beneficial for heat radiation in mild temperatures of climates with no extremes to cause undue radiation in winter or overheating in summer.

White or a light color is the best where the temperature at noon is high and at midnight low, for such animals are comfortable at both times whereas the black horse will die of heat strokes at midday or be chilled into pneumonia at night. It is remarkable to see the comfort of the white ones under these conditions and the very evident sufferings of the blacks.

Overheating and not confinement seems to be the main reason why young Zebras in our zoological gardens do not survive if housed, for they thrive in the open. As in all other matters, the young are more injured than the adults. All tropical animals have guards against the occasional cold air they encounter, and even are benefited by it, but nature seems to be extra careful as to overheating. Indeed our northern summers which are much hotter than the tropics are particularly deadly to tropical animals in our zoological gardens for they have no such defenses against great heat as animals which come from northern latitudes where there is a short very hot period each year. Northern stock is like the white man who stands these changes better than the negro. Consequently we find that as a protection against heat, hair color is a most vital matter. As previously suggested, unsuitable colors may be found entirely responsible for the dreadful mortality in cities during "hot waves." Indeed the slight change from England to the hotter climate of Japan is found disastrous to "thorough-breds" and "hunters," and such stock is no longer imported for breeding purposes. The slight difference between the heat of Northern and Southern Japan is largely responsible for the great differences in the horses described later.

The wild or primitive horses needed concealment most of all, by resemblance to the back ground, and if they lived in tawny temperate plains they took on a tawny or red-brown color like coyotes and foxes or grey like the ass in more arid lands, for these are fair reflectors of summer heat and conservers of body heat in winter cold. In tall grass they become striped with black to imitate the shadows, but these zebras change upon migration, though it is a slow process of centuries probably, as they are still fairly well protected in the open in some plains.

When man began the domestication of the horse there was no longer need of concealment, and the fittest were then of other colors which protected from heat and light better than the tawny. The Arab stock by this survival of the fittest is now largely white. White does conceal somewhat on arid soil but is not as good as closer approximations and is

therefore found only in domesticated horses or escapes from domestication, though the other colors may never entirely disappear as the animals are more or less protected artificially. Similarly, the Manchurian ponies, the best of which are said to come from Llama Miau in Mongolia, are largely white, to conserve heat in the severe winters and to reflect the dreadful summer sun. The minority are of the lighter solid colors and there are a few bays. The blacks are very rare, but as they are quick and nervous, like blacks the world over as a rule, they are prized as racers and bring high prices. But they must be coddled to survive in good condition.

These Mongolian ponies are undoubtedly the ancestors of the Korean, but, as there are no such extremes of heat and cold in that peninsula, and there has been little mixture for fifteen hundred years or more, a different evolution occurred. There are cold snaps to be sure, but the average winter weather is delightful. Similarly the summers though hot at times are not stifling. Consequently there is less need of white and black, both of which are rare. The colors are solid. the lighter tints prevailing.

According to Osgood of the *American Museum of National History*. the small, weak wild pony of the steppes of Central Asia (Prejevalsky's) is identical in form and size with the prehistoric pony pictured by primitive man in Europe, untold thousands of years ago, and a remnant still lives in Europe. It is one of the four primitive families, the others being the Celtic, Forest or draft, and Arab. The Tarpan of Russia is an eastern extension of the Celtic according to Bush-Brown and perhaps the Spanish pony is related. The Prejevalsky pony is red-brown, and it is the undoubted ancestor of the Mongolian, Korean and Japanese domesticated forms, it shows what a long time an environment can preserve type, and how quickly a slow migration can change type and color. The Korean horse has less artificial protection and preserves the Prejevalsky red-brown more often than the Japanese or Mongolian.

The Korean is doubtless the ancestor of the pony of Japan where there are no extremes of climate at all, and white is not essential. In the south where the summers are

the hottest though never stifling, there are but few whites. The general color is very light, varying from cream color to light bay—the dark bay being in a decided minority. These colors are not harmful in the mild winter but are essential in the summer to prevent heat stroke. As we travel to the north of Japan it is amazing to note the gradual darkening of the horses, until in the far north the prevailing color is dark brown, lighter variations being very few. A true black is very uncommon among the work animals in the north and so are the white ones, but for carriage use and in the army blacks are more common as they receive more care and can survive. I was informed by Lt. Col. T. Kani, Chief Veterinarian of the Japanese Army, that the white horses are weak by which I presumed he meant both muscularly and in resistence. All these horses, even the cream colored ones, have black skins, as a protection from light, there being the same difference in this respect between the Japanese horse and many of those in northwest Europe as there is between the men of the two places. I have never noticed a white skinned native horse in Japan, though I presume there are such "sports," for there are albino men there as in every other land. It must be repeated that the surviving stock in light countries always has a black skin, even if it is a good absorber and radiator of heat, for heat loss is prevented by a furry coat in cold places, but in hot lands the animals has a reflecting coat or hides in midday.

The cattle in Japan follow the same rules. In the south they are genearlly light colored with some blacks, but in the north they are dark, the majority being black or nearly so. In Korea as far as I went the cattle were almost uniformly red-yellow; indeed they were so alike that many groups I observed appeared as though dipped in the same paint tub. I am informed that the "Kirin" cattle of Manchuria have this same color. It is evident that in their grazing areas they still need concealment, for this color is about what theory would call for it in a wild species in such surroundings. Korea is still greatly infested with large tigers which are more than a nuisance to the outlying farms. The evolution of domestication has not occurred, and, like

the Prejevalsky pony, the cattle have apparently retained a color they evolved in Southern Asia.

The Japanese pony is too small for military purposes though stronger in muscle than its larger Mongolian ancestor, so the army depends upon imported Australian and Russian stock and the half-breeds between their native pony and imported breeds—mostly Hungarian. This latter selection is very significient, for Turkey, Hungary and Russia are said to be the only nations which have kept their native domesticated stock entirely free from mixture with imported types not adjusted to the local climate. They are all three "pure-bred" of their kind—adjusted to their environment. In no other case, excepting the Celtic pony, Prejevalsky pony and European draft animal, can we find "pure-breds" dating back perhaps 20,000 years or more, and these three exceptions are unfit for military purposes. Now Hungary resembles Northern Japan in climate more closely than the climate of Turkey and Russia, and the half-breeds between Hungarian and Japanese horses do furnish a hardy strong animal fit for the environment though it is not large. At the military review in Tokyo, on the Emperor's bitrhday, I saw some thousands of these horses, and was pleased to see how the coloring followed what theory demanded. The white ones could be counted on the fingers, the lighter corols were so few as to be obscured by the dark ones and the whole force gave an impression of dark bays and browns. As the imported stock, particularly some beautiful animals ridden by officers, were mixed in, I obtained permission from the War Office, through our Military Attaché, Lt. Col. H. C. Hawthorn, A. C., to visit some mounted organizations to obtain more accurate figures. As my leave of absence was coming to an end, I had to start for home before the day set for the examination which Col. Hawthorn made alone, and I quote from his most excellent letter, as it shows the facts under discussion.

"By arrangement with the Japanese War Office, I visited the station of the First Regiment of Field Artillery at Setagaya, and carefully examined the horses of this regiment, with result as follows:

No of Battery.	COLORS OF HORSES.							Remarks
	Black	*Bay*	*Slate*	*Sorrel*	*Roan*	*Dun*	*Grey or Whtie*	
1st	18	30		4	1			10 pure Australians, all other of mixed breed.
2d	13	31	6	5				14 Australians, 2 Russians.
3d	13	19	6	6	3			8 Australians.
4th	9	24	5	5	1	1	1	17 Australians. 6 Russians.
5th	10	28	8	5	1	1	1	12 Australians. 8 Russians.
6th	12	21	6	5	1			15 Australians. 2 Russians.
New horses unassigned	14	19	1	9				Recently from breeding farms in northern Japan.
Total exam'	89	172	32	39	7	2	2	

"In this enumeration, all the blacks are real blacks and many of the bays run so dark that they would be called black at home in coloring a troop or battery. For example: In one battery, the fourth, I kept a careful distinction in my notes between the blacks, dark bays and bays. I found them to be 9, 8, and 16 respectively, although in the table, the last two appear only as 24 bays. This proportion approximately holds good throughout.

"The color called 'slate' was a blackish, cloudy, mouse color and is a shade common among the pure Japanese horses. Taking then the blacks, bays and slate colored horses together, we find that 85% of the 343 horses examined are dark, and of the remainder, a few of the roans approached very close to the bay.

"I was assured by the field officers of the regiment that the proportions as to colors was about the same in the regiment of the Guards stationed at Setagaya.

"Even among the small number recently sent from the breeding farms in Northern Japan, this proportion is about the same.

"The slate colored horses were all half-breeds and undoubtedly came from black sires or dams. By adding these

to the pure blacks, this number would constitute nearly 50% of the dark haired horses.

"Again if we add to this last number the dark bay horses, which might fairly be called black, the 'black' horses would approach 70% of the dark haired horses.

"This condition is a matter of common observation throughout Japan, and is certainly my recollection of military horses I have noticed at reviews and maneuvers.

"There was but one black horse with what appeared to be a white skin, and he was an Australian. The Australians ran to bays and sorrels; while the few Russians were bays, blacks and an occasional sorrel or dun.

"Among the entire 343 horses examined there were 76 Australians and 18 Russians, the remaining 249 were half-breeds, bred in Japan at the Government breeding farms."

From the very evident unfitness of white horses to Japan, there is ground for asserting that in such a mild equable climate, the prevention of radiation of body heat by that color is the cause. The horses become overheated where the dark ones are comfortable—the same thing as happens to a white man in the habitat of the negro. All the dark horses seem to be excellently adjusted to their mild environment and also able to subsist on native foods, but they are not fit for other places. Eighteen months or less in Manchuria in the Russian war rendered about one-third unfit for further military service. No observations were kept as to which colors did best, nor whether any colors showed predominent in sunstroke, but I did learn that pneumonia did not cause more than one per cent. of the deaths. Cold is not as deadly as heat to them. Similarly this stock, adjusted to the mild light of temperate zones since pre-history, is not fit for the tropics, and according to Chief Veterinarian Kani when taken to Formosa suffers unduly from opthalmia.

There are no American or Australian climates like those of Japan but in places which most closely resemble Japan, the best "native" stock is of essentially the same colors, and equally unfit for other places. The Australian and American stock taken to China by the Germans in the

Boxer campaign did not stand the change, the Americans being the worse of the two. The survivers were sold and the troops were mounted on Mongolian ponies. The prevalence of sorrels in the similar climates of Texas and Australia is proof of color adjustment of heat.

I have been informed that many of the Americans and Australian horses lost their tails in China from a curious form of infective ulceration. This, if true, brings up another point of migration—lack of immunity to new enemies like surra, rinderpest and glanders which can be harmless to stock evolved in the same land with the germs. Some of th s naturally acquired immunity of pure-bred local stock is supposed to have some relation to color, but the observation so far show no general law on the subject, beyond the fact that the most unfit colorings among migrants are weakest because the most injured and are the most susceptible.

Veterinary Surgeon W. P. Kelty, of the Quartermaster's Department has kindly sent me all the references he could find in the text books but it is not much as so little attention has been given to the use of coat color. White horses nearly always get melanosis sometimes after eight or ten years of age, and the dark colors very rarely, but this is due to the tendency of such densely pigmented structures as the black skin of white horses, to take on pigment if injured. The skin is evidently irritated by excesive light, for the disease attacks only the exposed places not covered by hair. It is not known why other horses equally exposed are immune. The color does its work but suffers for it; indeed every one of our guards get the blows they ward off from us, and every protective or offensive character gets more or less injured, like the horns of deer and tusks of dogs. Dr. C. W. Stiles (Diseases of the Horse U. S. Dept. of Agriculture) says that Australian horses and white and grey mules are more susceptible to surra than other breeds and colors but Dr. Kelty says this statement is not correct. Our horses in the tropics therefore suffer unduly from local diseases and average a short life. The survivors which escape infection are pitifully weak at an age which would be considered their prime at home.

With regard to inability of northern stock to stand the tropics, it must be remembered that the eye is more or less prominent, but that in tropical horses it is more deep set and overhung by bone, heavy brows and lashes, thoroughly protecting it from the light. In addition the retinal, iris and conjunctival pigment seems much thicker. Our mules inherits this protection from the ass and can stand exposure more than a horse.

Col. Hawthorn informs me that at Vancouver Barracks there was a black horse battery and one of lighter types, and that the black horses were always in poorer health—several dying on a maneuver march which both batteries took together. Some of this may have been due to harder work exacted of the blacks, but it seems to show inability to stand work in an unsuitable climate. The black therefore, is much restricted as to climate, for the Vancouver summers are not tropically hot though the sun can be strong when it does shine. In the milder summers of northern Japan the blacks are more at home, but it is safe to predict that in the long run, the jet blacks will not prove as good as the colors of the native stock, —blackish browns and dark bays. Indeed in a month's search on the streets, I saw but one or two work horses which were black all over, and I did learn that grays were becoming commoner as carriage horses. It is also a matter of observation that gray and white horses are becoming as common in America as they are among the heavy draft animals of central Europe. The hot summer seems to be the reason.

It would seem that on our hot summers a black horse when taken into the sun's rays would be better off for a thin white cover over the back and sides, as it would then imitate what nature does to the Arab. It is worth trying.

The "native" Japanese pony is really an importation of possibly 3,000 years ago but it very quickly changed in type as the prehistoric statuettes show it esentially as it is today; smaller, more slender, narrower in chest and smaller in plevis and buttocks than its present type of Mongolia, but much larger than its immediate Korean ancestor and its remote ancestor the Prejevalsky pony.

The Celtic type, like the asses and zebras, has no callosities on the hind legs, but these remnants of the first toe are present in all the others. In the Prejevalsky pony the callosity is a narrow strip instead of the drop shape common to the forest and Arab families. Now in the Japanese pony, the callosity on the hind leg if visible at all is a narrow strip, as in the ancestral Prejevalsky pony, but generally it is invisible being either absent or covered by the rough curly hair. These ponies are so vicious that it is not possible for a stranger to examine them closely, but in the dozen or so I was able to handle it was always present though small and narrow. Native drivers say it is never absent. This shows that when a character in migrants is not vital it may be preserved millenniums, but if it is harmful like a wrong color, it changes in a few generations or the animal dies out. I have been informed that the callosity is always much larger in the half-breed military horses in Japan than in the native, thus showing the European influence; but, strange to say, in the half-breed Celtic stock of Norway, the callosity is generally absent or very small, according to Professor Stejneger, as though the mother had the greater influence. The mule from European stock always has them.

In the extensive American literature as to breeding horses to a type fit dor a particular purpose, there is scarcely a word as to breeding them also fit to survive in various climates. It is falsely assumed that a trotter fit to live in New England is also fit for Texas or Florida. We lead the world in creating trotters mostly because the rest of the world has no use for them and do not try, while they lead in hunters and runners because these types are more useful. The principles of breeding to a type are so simple that a child understands, but no one seems to have realized that there is such a law as adaptation to environment, which makes it impossible for instance to breed hunters or trotters in Iceland. Color has not even been thought to be a factor at all. The result is, that we are constantly hearing complaints that after a type is created in America it shows a persistent tendency to deteriorate. The reason is that there is such a degree of unfitness of the animal to its environment that even

with the greatest safeguards it is sure to be injured. It cannot become a fixed type like those arising in very limited areas in long settled lands. Acclimatization is a matter of creating a physique adjusted and is not possible with a wrong physique. The only way to keep up a type which is useful though unadjusted, is to do as the Danes are doing with their hogs and the Japanese with horses, constantly import proper breeders from similar places where they are adjusted and fixed types. We can then afford to let all the progeny die out and not breed from them at all. But if we can get types adjusted to the climate, it seems a great lengthening of the work-life. If this life is increased from ten years to fifteen it means a fifty per cent. increase of national wealth in that line.

The basic purpose of this paper is to emphasize what European anthropologists are now so often mentioning—man and the domestic horse have wandered all over the world together, and by the process of survival of the fittest have broken up into numerous types each fitted for a very limited area and no type of either animal can be taken to an unfit environment without paying the penalty of decay and eventual extinction either by death or by change to another type. As the horses of northern and southern Japan show great differences in color, and as the Cantonese men and Manchus show equal differences in complexion, we can well see that even minor differences of climate have a very potent effect in the end in the matter of pigmentation even if a migrant adult does not perish at once. Every bit of information on this line which can be elicited by horsemen, will have a reflex effect on the welfare of migrating men, keeping them from places wholly unsuitable and guarding them from adverse factors if they may be compelled to go. This is the main excuse of a physician, who knows little of horses, for entering the field of the vererinarians though incidentally the army may be saved great sums of money, if it finds out what types of horses and mules as well as men are best for each of our climates.

As an illustration it might be shown that there is no place on earth like the British Islands and no place which

could have evolved their inhabitants and civilization, and though at least four and perhaps five distinct types have peopled the islands—one coming all the way from Asia in the bronze age, they have all been so modified that they cannot now live in any other place if it is markedly different, though such minor matters as head-shape remain to identify the types. Similarly Japan has been peopled by four or perhaps five types of men—one coming all the way from southern Europe 3,000 years ago or earlier, and though these types are still distinguishable by characters not esential to survival, the climate has so completely molded them all to a common type in the essentials for survival that they were once thought to be homogeneous and of one race. Thus there is no place on earth which could have evolved such a people and such a wonderful civilization, but the absence of climatic extremes has eliminated types fit for such seasonal changes, and the Japanese are consequently, as experience shows, more unfit for colonization than the British. Both nations must increase at home and be fed from abroad if their lands do not produce enough, and both are becoming bound to the rest of the world for necessaries of existence. They both must protect their trade in those essentials of survival or control the sources of supply—and this is the present trend of world events. A few observations on horses may thus assist us in explaining these events.

My thanks are due to Lt. Col. T. Kani and Major K. Saigo, Adjutant to the War Office, for courteous assistance, and to Veterinary Surgeon Hansen, Quartermaster's Department, Iloilo, for invaluable help from his enormous knowledge and experience.

Since the above was written, it has been learned from Gunnery Sergeant Jas. W. Lattin, U. S. M. C., American Consulate, Seone, Korea, that he has examined the native ponies and finds the callosities on the hind legs essentially the same as in the Japanese ponies. They are 1⅛ to 1⅝ inches long and ½ inch wide, generally not rising above the skin, and more or less concealed by the hair. The natives burn the callosities to prevent rheumatism. This character,

then, in spite of the persistent mutilation continues to be formed and shows the relationship to the Japanese pony of different size and color, and the derivation of both from the Prejevalsky family.

On the other hand, the pony of southeast Asia seems to be derived from the Arab, as it has the same general form though smaller. The most vigorous are the dun and yellow colors, as in the similar Philippine climates, though there are all other colors in a smaller percentage. The types from northwest Europe do not flourish in India, as the climatic change is too great, so the cavalry is now mostly, if not entirely mounted on Australians. The origin of the Australian is not known to me, but it seems to have been largely if not entirely derived from Arabians of a similar climate. Nor has there been any success in rearing half-breeds between northern European horses and the native Indian, and I have been credibly informed that the attempts have been abandoned.

Major A. J. Roberston of the Philippine Constabulary, reports that the "native" pony of the Islands has large callosities like the Arab, as we would presume since this stock is largely derived from Arabs and Barbs imported by the Spaniards and perhaps from Indian ponies also. Yet the callosities are occasionally very small on the hind legs or entirely lacking as though there were more or less of an infusion of the stock from northeast Asia, in past ages. The Filipinos also have superstitions about the callosities, the absence indicating speed.

It has been learned that none of these tropical horses from the Philippines have been able to survive the cold climates of American, and we presume from the same phenomenon in the Arabs taken to China. It is probably more than a question of housing in these cases for the zebras live out doors all winter in New York, if they have a shelter. In very cold climates, the horses have probably developed different respiratory apparatus, as in men in cold places, permitting the breathing of cold air which is fatal with the open nostrils and wide nose so necessary for survival in the hot rarefied air of the tropics.

Under date of February 12th, Captain A. J. Bowley, F. A., Military Attaché, Peking, writes that he has examined fifteen Mongol ponies and finds the callosities on the hind legs small in ten but fairly large in five. This rather indicates remote affinity to the Prejevalsky. As to color he has heard from men who have visited Mongolia that they have seen "whole herds of horses pure white in color without a mixture of any other color." Horses in Peking are evidently selected for color and survive as they are sheltered, so they do not show the relative proportions of colors found on the range. In one troop of fifty-six there were, for instance, thirty-six bays and twenty sorrels. A dozen of them examined for skins were equally divided between white and black, showing that other blood is mixed in. The predominating colors in Peking at large are bays, sorrels and white, in orders of numbers, as we would presume from the selection of colors for the market.

Reprints and Translations.

THE ARMY REMOUNT PROBLEM.*

By GEORGE M. ROMMEL, Chief of the Animal Husbandry Division.

INTRODUCTION.

THE mounting of troops in an army is a most serious problem. Not only must provision be made for a supply of of horses sufficient to equip the mounted service for the ordinary routine work during peace, but horses multiply slowly, and a reserve must be provided for use in case of an outbreak of hostilities. In the solution of this problem the European countries, with the exception of England, have for more than a century expended large sums of money in the encouragement of horse breeding, by maintaining breeding farms, by granting subsidies to stallions, by prizes for horses of suitable type, and by grants to breeders' associations, prizes for racing, etc. England has heretofore been content to rely upon the resources of her colonial possessions and the United States for such horses, but her experience in the Boer War ten years ago, when she was forced to drain North America of a large proportion of the horses suitable for military purposes, has compelled her to accede to the demands of the army, and a grant of $200,000 has been made by the Board of Agriculture to en-

*Reprinted from the twenty-seventh annual Report of the Bureau of Animal Industry, (1910).

courage the breeding of military horses at home. That the United States faces a similar condition is a very wide spread opinion.

HORSE BREEDING METHODS IN EUROPE.

The German Empire.

Germany probably makes larger total expenditures for the encouragement of horse breeding than any other country, and of all the German states most attention is devoted to the subject in Prussia. The Prussian Provinces not only supply horses used in the army in Prussia, but in Bavaria, Saxony, Wurtemburg and other parts of the Empire.

There are five breeding farms and eighteen stallion depots in the Kingdom of Prussia, the farms containing a total of over 20,000 acres. The breeding work of the governemnt is partly to encourage live-stock raising in general, as well as for military purposes, although there are two Provinces in Prussia known as the "remount provinces," where only the military object is considered by the Government. The stallion depots (Landgestute) are most important from a numerical standpoint, and contained 3,315 stallions in 1907. These stallions "make the circuit" from February to June, at fees ranging from $1.19 to $4.76.

The Prussian Government does not permit expense to stand in the way of acquiring the services of a valuable stallion. Large sums are appropriated annually for such purposes, and Derby winners are bought if needed. The budget of 1907 for the purchase of horses amounted to $440,000, with a special fund of $47,600. Among noted English thoroughbreds which Prussian Government has bought were the Derby winner of 1897, Galtee More, for which $66,640 was paid, and Ard Patrick, the Derby winner of 1902, for which $100,000 was paid.

FRANCE.

The breeding system of the French Government is especially interesting to an American on account of the large numbers of French horses which have been exported to this country. Although the work is done entirely by the Ministry

of Agriculture, it is largely affected by military conditions. The French Government has a breeding farm at Pompadour of 1,122 acres where horses are bred, a sheep farm of 619 acres in connection with the agricultural school at Grignon, and the famous sheep farm at Rambouillet. Aside from these the breeding work is done through the medium of the "haras" or central studs, twenty-two in number, from which stallions are distributed throughout the country. In 1906 the French Government owned and used for breeding purposes 3,321 stallions, which covered 161,414 mares at an average fee of $1.47. The breeds used were as follows:

Thoroughbred	229
Arab	100
Anglo-Arabs	234
Half-blood (Demi-Sang)	2,208
Draft horses	550
Total	3,321

The Government also encourages horse breeding by examining and approving or disapproving privately owned stallions for breeding purposes, by giving prizes at horse shows, encouraging racing, and maintaining the studbook for thoroughbreds and half-breds. During the year 1906, $1,718,129 was voted by the Chamber of Deputies for the improvement of the breeds of domestic animals, but more than twice this amount was spent, the balance being covered by the receipts from race tracks and other sources.

AUSTRIA-HUNGARY.

The efforts of the Austro-Hungarian Government to improve the condition of horse breeding and other forms of the live-stock industry surpass those of all other countries in one respect—the magnitude of the breeding farms—in addition to which large numbers of stallions are placed at convenient stations during the breeding seasons, as in other countries. In Austria proper there are two state horse-breeding establishments, with farms in connection, leased by the Ministry of Agriculture. These are the one at Piber of 1,000 acres and the one at Radatz with 23,809 acres. The entire Government expenditure in Austria in 1907 was $938,000. This work is very

largely dominated by military considerations. In Hungary are the great establishments of Mezohegyes with over 50,000 acres of land, 2,000 horses, and 6,000 employees; Kis-Ber with over 18,000 acres of land; Babolna with over 10,000 acres; and Fogaras? In addition there are a number of stallion depots and two studs which breed horses solely for the Emperor's stables. With all this great outlay the Government is not able to supply the army, and over half the horses used are bred by private individuals without any assistance from the Government. The privately bred horses, however, are not so uniform in size and gait as those bred under Government supervision. The great estates of the Hungarian Government are not devoted entirely to raising horses, but large numbers of cattle and other animals are raised as well for public benefit.

ITALY.

The Italian Government does not devote so much attention to horse breeding as those already mentioned, but 640 stallions stood for public service in 1906, covering 29,462 mares.

PURCHASING REMOUNTS IN EUROPE.

In purchasing remounts, purchases are almost uniformly made in the open market, the purchasing board presenting itself at localities within a given district at stated times and making selections from among the horses offered. In Germany, for example, in 1910, 27,462 horses were offered of which 13,660 were bought. The prices ranged as follows:

Prussia	$253
Bavaria:	
3-year-olds	243
4-year-olds	310
Saxony:	
Young horses	254
Older horses	321
Wurtemburg:	
Young horses	253
Older horses from Russian remount depots	368

ARMY HORSES IN THE UNITED STATES.

Next to Russia, the United States leads the world in the number of horses which it possesses. These horses, as everyone knows, are the descendents of horses brought from the Old

World after the discovery of America by Columbus, as there were no horses on the American continent at that time. Prior to the Civil War the horses of the United States were of the light type, with one prominent exception—the Conestoga draft horse of Pennsylvania, whose origin has always been shrouded more or less in mystery and whose complete disappearance was a remarkable result of the development of railway transportation. There are also a few minor exceptions. Well-authenticated evidence shows that a few draft horses were imported from France in the thirties, and the draft stallion Louis Napoleon, imported from France in 1851, appears often in the pedigrees of Percheron horses in the United States.

Army Horses of the Civil War.

At the time of the Civil War, however, the horses of the United States contained so little cold blood that it was a negligible factor. The Morgans in New England, Standardbreds in New York and the Middle West, Thoroughbreds in Virginia, and saddle horses in Kentucky, Missouri and Tennessee, predominated and made up the bulk of the splendid mounts of the contending armies of that great struggle. Even the much despised plains horse (the mustang, cayuse, or broncho) was the descendent of warm-blooded horses and doubtless contributed his share in remounting the cavalry of both the Northern and Southern forces in the Civil War. The demands of these troops for remounts were enormous, but there does not seem to have been any insurmountable obstacle to the acquisition of these horses. They were in the country, they answered the purpose, and they were obtained when needed.

* * * * * * * *

The cavalry of the Southern Army was almost as numerous as that of their opponents, and the consumption of horse flesh was probably nearly as great. Yet the Southern troops were even better mounted than those of the North.

The Development of the Draft Horse Industry.

With the close of the Civil War began the rapid importations of draft horses from Europe, and this trade has flourished until the present time, with the exception of the period of depression during the middle nineties.

In the corn belt and in the irrigated sections of the west the draft horse is becoming the farmers' horse almost to the exclusion of horses of the light type, and rightly so. Where conditions of environment are satisfactory a farmer is wise to use draft horses because he can haul larger loads, get greater power for moving heavy implements, and suffers a miminum loss from blemishes when he markets his surplus. In some parts of the country where a prosperous farmer formerly kept a fine team of drivers to get about over the country, the drivers have been discarded and the farmer now owns an automobile of moderate price. Even in the South where the prolonged hot seasons undoubtedly works to the disadvantage of drafter, such horses are gaining a foothold.

* * * * * * *

The table* shows emphatically that the draft horse is easily the more popular horse in nearly every State where figures are available, the percentage ranging from 24.03 in New York to 88.51 in South Dakota. Even in Pennsylvania, where conditions are not as a rule favorable to draft horses on accouut of the hilly and mountainous character of much of the State, over 50 per cent. of the purebred stallions are drafters. In Wisconsin, Illinois, Iowa, Kansas, Minnesota, Nebraska, North Dakota, South Dakota, Montana and Utah, where the light horse was formerly the preferred type, and from which section most of the remounts for the army once came, the percentage of purebred stallions of the light type is as low as 11.39, and does not exceed 39 per cent. At the time of the Civil War there probably was not one draft stallion in all this territory, and this remarkable change has therefore been the result of less than forty-five years growth. One can only wonder what the next forty-five years will bring forth.

Military Horses in the United States To-day.

The argument is frequently advanced that if the War Department were to pay sufficient prices for horses it could easily obtain the number needed for the use of the army. This argument is not exactly apropos. Under the remount system

*The table showing the number of purebred stallions in several States is omitted.—*Editor.*

now in vogue, whereby the Government buys young horses direct from farmers, the supply necessary for the regular army on its present peace footing is being obtained in a fairly satisfactory manner. * * * * * However, the Government is concerned in the encouragenemt of a supply of horses which will be profitable to those who raise them and which may be drawn upon in case of war. The well-worn dictum that preparedness is half the measure of success in a conflict applies no more to the subject of rifles, guns and fortifications than to that of horses for the mounted service. A supply of horses sufficient to equip a modern army can not be picked up in a few weeks where it does not exist, and suitable horses can not bebred and raised to a usable age in much less than six years. We have already observed the sweep of the draft horse over the United States—a perfectly normal matter, based on sound economic laws. But an army can not be mounted on drafters if it is to use its cavalry and field artillery to good advantage.

Police Remounts.

The success of the police departments of our large cities in providing their mounted men with good horses is always brought up to show that a sufficient price will always provide sufficient horses of good type.

According to the census bulletin of 1907 giving statistics of cities there were in that year 1,106 patrolmen mounted on horses in the various city police departments. Of this number 559 were in the cities of New York, Chicago, Philadelphia, St. Louis and Boston. The total number of mounted policemen in the entire country, therefore, just about equals the enlisted strength of a regiment of cavalry on a war footing.

The authorized number of mounts for the cavalry of the regular army on its present peace footing is 11,970, and on a war footing 17,100. The mounted police are practically comparable to the cavalry on a war footing, and, therefore, the army, on the basis of fifteen regiments of cavalry, requires over fifteen times as many horses as the entire combined mounted police force of the United States.

* * * * * * *

The information for the New York mounted police is particularly enlightening, as that body of men has a well deserved reputation not only for horsemanship but for the excellent quality of its mounts. The department expects to purchase about seventy-five saddle horses in 1911 at a cost about twice as much per head as the cavalry remounts are now costing the government under the remount system. This contract has been held several years by one firm, which does a very extensive business in all kinds of horses and has buyers in various parts of the country where good horses are found. These buyers are familiar with the specifications of the New York police department and have instructions to buy horses when they find them conforming to those specifications. The horses selected come mainly from Indiana and Missouri, and are said to be principally of trotting-bred stock; some are grade thoroughbreds. Only about half the horses purchased are accepted by the police department, but the supply firm has no difficulty disposing of the others for general purposes. If this statement means anything, it means that, even at a price of nearly $400, it is not an easy matter to get enough horses to supply New York's apparently small demand of seventy-five head per year; and it is evident that if, under present conditions, the Government undertook to mount the regular cavalry as well as the New York police are mounted, it could only be done at tremendous cost, if at all.

* * * * * * * *

The fact that the police departments of our cities are able to mount their men without resort to any plan to encourage the breeding of horses of the particular type desired has no bearing on the army remount problem, on account of the small number required for the police. The army could by using a plan similar to that of the New York police, place men in various parts of the country to pick up desirable horses as opportunity offered, and this is practically what is now being done in supplying the remount depots. On account of the large numbers required and the inevitable necessity of keeping in mind the supply of good horses in case of war, these officers are strongly impressed with the desirability of educating horse

raisers to breed intelligently and to use methods which will insure as much as possible reasonably profitable results. As Congress has expressly forbidden the War Department to expend any of its appropriation for breeding purposes, the dilemma in which officers find themselves may readily be seen.

Mounted Service in the Militia.

Next to the police in intimacy of contact with the public is the mounted militia, and this subject may be passed briefly. If it is difficult to obtain the proper horses for the mounted police and the regular army, it is many times more so to get satisfactory mounts for the militia cavalry and artillery.

Squadron C (Brooklyn), New York National Guard, has taken quite a step toward solving this problem by maintaining a breeding farm, where some of the remounts needed are bred, and where horses owned by the squadron may be turned out if necessary. Squadron A occupies an armory in Manhattan, where the horses it owns are kept, but these represent only a part of the horses needed by the squadron; some are owned by the members, but many are rented as needed.

The rented militia horse is not only a source of pain and discomfort to his rider, but is an expense to the State, which is usually out of proportion to the service rendered. When the encampment is over, the horses goes back to his owner and the Government has no claim on him if he is needed again. These horses are frequently poor livery hacks, untrained to work in mounted organizations, and would be decidedly unsatisfactory in real warfare. Further, it is only by paying very high rates for their rental that they can be obtained even for the ordinary, peaceful encampment. Anyone who has visited or participated in a militia encampment in which mounted militia were engaged, and has seen the curious mounts provided for such troops, will readily appreciate the difficulty of obtaining really satisfactory remounts for this purpose.

Mounted Service in the United States Army.

The mounted service in the regular army is now being supplied with horses which are bought young, developed and trained in the remount depots, and issued to troops at 4½ to 5

years of age, properly trained and ready for work. The remount depots were first established in 1908, and already the wisdom of Congress is apparent in permitting the War Department to use abandoned military posts for this purpose. As will be shown under the next head, the horses for the depots are purchased by officers direct from farmers, and the middleman's profit under the old contract system is eliminated, the breeder receiving the money which the Government pays for the horse.

The War Department is now paying about $150 for 3-year-old unbroken colts, and somewhat less for 2-year-olds. The writer is permitted to make the following quotation from a recent letter from the officer in charge of the Fort Reno Remount Depot to the Quartermaster General concerning two lots of 2-year-old colts purchased in 1910 in Texas and Wyoming:—

> These colts are now three years old, and have in my opinion made satisfactory growth.
>
> The average height of the Texas colt is 14.3; average weight, 796 pounds; average growth in the year, three inches; average increase in weight, 115 pounds. By the time they are five years old, with the exception of probably eight head, the average height should be 15.1 or over, and weigh 1,000 pounds or over.
>
> The average height of the Wyoming colts is fifteen hands; average weight, 864 pounds; average growth about two inches; increase in weight, 48 pounds. Practically all this gain has been in the last few months. These colts at five years of age, with the exception of probably three, should average well above 15.2, and weigh 1,050 to 1,100 pounds.
>
> The Texas colts cost $80 per head, and the cost of forage from the date they were received (June 6, 1910) to June 1, 1911, was $32, making the cost of the colt to the Government when three years old $112.
>
> The Wyoming colts cost $100 per head, and it has cost $25 per head to forage them from August 30, 1910 (date of receipt), to June 1, 1911, making the cost of the colts at three years of age $125.
>
> Cost of the Missouri and Virginia horses at three years is $150 to $164.

The mounted service still contains a large number of unsatisfactory horses purchased under the contract system, and it will naturally be some time before all the horses in the army will have been received from the remount depots. The system is satisfactory and adequate for the present peace footing, but what the country would do in case of war can only be conjectured.

What War Requirements Mean.

The following table gives a slight idea of the difference between supplying the present demand of about 2,000 horses per year and the demands of war. It shows the number of remounts of all kinds required by the regular army and militia on a war footing, excepting draft horses and animals for wagon trains, some of which might be replaced by motor vehicles:

*Total authorized animals, mounted service, Regular Army and militia, war footing.**

Class.	*Regular Army.*	*Militia.*	*Total.*
Cavalry	17,100	6,840	23,940
Artillery	4,708	9,108	13,816
Engineers	249	456	705
Signal	425	1,656	2,081
Hospital	692	439	1,131
Orderlies	620	480	1,100
Officers	3,352	2,262	5,614
Total	27,146	21,241	48,387

This table shows that on a war footing 50,000 horses (in round numbers) would be required before a shot was fired or a saber drawn, as against 20,000 horses now in the regular army on a peace basis. The number is regarded as conservative, as the figures show the minimum needed. The fact that new mounted organizations are constantly being formed in the militia will soon make these figures considerably under the mark.

On the basis of a ten-year life for a horse in the mounted service, under the remount system there should be available annually at least 5,000 horses to supply both the army and the National Guard, but in war we can not count on a ten-year life. The decimation of horses in war is enormous and must be provided for if a country's mounted service is to be properly equipped. How much this should be the writer does not pretend to estimate. The Federal Government purchased during

*From Quartermaster General's Office, War Department.

the fiscal year ended June 30, 1864, 188,718 horses. Captures reported added 20,388 more, and the number consumed daily was therefore 500 head, without considering those captured and not reported. During eight months of the year 1864 the cavalry of the Army of the Potomac was remounted twice, nearly 40,000 horses in all being required. During his Shenandoah Valley campaign Sheridan was supplied with fresh horses at the rate of 150 per day. In his report for the year 1865 the Quartermaster General of the United States Army stated: "The issue of cavalry horses to the Army of the Shenandoah activly engaged under Major General Sheridan have been at the rate of three remounts per annum. The service of a cavalry horse under an enterprising commander has therefore averaged only four months."

If the 50,000 horses now required by the mounted service of the regular cavalry and militia (excluding those for wagon trains, etc.) were called into active war duty, we could look for a demand of upward of 150,000 horses per annum, basing the estimate on the experience of General Sheridan's army.

The British Army in South Africa ten years ago consumed enormous numbers of horses, over 100,000 being bought in the United States alone, and incidentally, it may be remarked that this exportation of horses went a great way toward causing the shortage of horses of the right type for army purposes which we now observe in the United States and created a situation of which draft horse breeders were quick to take advantage. It is exceedingly doubtful whether a foreign government could now obtain such a supply in the United States. How, then, could the United States itself mount an army? If with draft horses, or horses of draft breeding, how could it meet a hostile cavalry properly mounted?

The Remount System in the United States.

The use of remount stations in the United States as depots where young horses are developed and educated for use in the army has been inaugarated during the last five years.

In a lecture before the Army War College in February, 1907* Major (now Quartermaster General) J. B. Aleshire presented an elaborate plan to improve the conditions under which horses and mules were supplied to the Army, urging the purchase of young horses direct from breeders and developing them at army stations so that by the time they were mature they would be ready for actual service, undesirable ones would be weeded out, those retained would have been given rational development and handling, and a much longer period of usefulness could therefore be expected from them than from mature horses purchased under contract.

In presenting the report of the Quartermaster General for the fiscal year 1907, General Aleshire brought his remount plan directly to the attention of Congress.

*He urged the establishment of "three or more remount depots, to be properly organized, located, and equipped, and the same number of remount districts. * * * To each of the three or more remount depots would be assigned a remount district, and each depot and its tributary district would be in charge of an officer of the Quartermaster's Department, preferably detailed from the cavalry or field artillery and especially adapted for this duty. * * * The officer in charge of each remount depot * * * would personally superintend the care and handling of the horses under his charge and see to it that the horses are well fed and cared for, gently and kindly handled at all times, and properly exercised and broken.

When directed by proper authority, he would purchase young horses, to conform to specifications, within the district assigned to his remount depot, to which they would be shipped.

"He would be required to acquaint himself with and keep a record of the number and class of horses, how bred (if possible), by whom owned, where located, and generally complete data of the horse and mule production of his district, and be prepared to direct a purchasing officer or go himself to the place most suitable for the establishment of sub-depots, in case of an emergency, and where the best horses could be found.

"The average life or period of duration of cavalry and artillery horses has heretofore been 6.4 years, and that of the mule 10.6 years.

"In view of the fact that the young horses to be sent to the remount depots will be carefully selected and be purchased for remount purposes before they are worked down, injured or spoiled by improper breaking, and since the number of remounts to be supplied annually is to be limited, which in time will result in the mount of each organization being composed of horses of ages from four and a half years up, the number of each age being approximately that supplied each year, it is submitted that the average life or period of duration of remounts for cavalry and artillery will be materially increased by this system of purchase and supply, and it is therefore taken at ten years, barring epidemics, etc."

By the increase in the average life of animals purchased under this plan, the estimate was made that the cost of remounts for the army could be reduced one-third. It was also suggested that the development of the plan and the experience gained by officers in connection with it would enable the army better to meet emergencies requiring a large increase in the number of animals required.

Among the advantages of the proposed system were pointed out the following:

The army will be supplied with young, fresh, sound, and well-broken horses, in every way suitable for the service, and that have not been spoiled or injured while breaking, as is often the case under the present system.

These young horses will be fed grain and receive the best of care a year earlier, and therefore be much stronger and better animals when sent to the troops and batteries at from four to five years of age than if wintered by farmers or on the ranges and purchased a year later, as at present.

It creates a market for young horses from three to four years old, and the Quartermaster's Department would have few if any, competitors; the first cost should therefore be less, and the department as a buyer would be in close touch with the horse raisers and breeders.

The average life or duration of the horse will be longer, so that about one-third less number of remounts will be required yearly, with a corresponding reduction in expenditure.

The cost will be one-third less, as the department will be able to select desirable young horses from all over the United States, whereas at present western horses, though in many cases well bred, are not desirable, as they are not broken, gentled, or handled until a week before they are offered for sale as cavalry or artillery horses, and when purchased many of them are never serviceable. This system will afford time and means to properly handle and break these young horses and to accustom them to man from an earlier age.

An opportunity will be afforded for a close and careful observance of all horses for several months before issued, and such as are found undesirable or not suited for the service can be disposed of from the depot. The Government would therefore save the freight to posts on such horses, and, since they are young they should sell at the depot for nearly their first cost.

Horses will be uniform as to conformation, action, etc., and the special type desired will be standardized and understood by breeders and farmers.

Horses can be shipped in first-class condition in every respect and in cars that are sanitary; there should therefore be practically no sickness on arrival at posts.

Requisitions can be filled promptly without waiting for advertising and purchase, as at present, and horses of desired color can be sent to a particular troop or battery at no additional expense.

The Quartermaster General suggested the use of abandoned military posts, such as Fort Reno, where building were already available and the plan could be put into effect with-

out extra expense. His recommendations were approved by Congress in the Army Appropriation act for the fiscal year 1909, and under General Order No. 59, War Department, 1908, the military post of Fort Reno, Okla., was designated as a general supply depot of the Quartermaster's Department, and would thereafter be known as the Fort Reno Remount Depot. A year later General Order No. 80, War Department, 1909, similarly designated Fort Keogh, Mont., as a remount depot. Issues from the Fort Reno depot were commenced during the fiscal year 1909.

In the spring of 1910 purchases of horses were begun in Virginia and Kentucky, and an officer was detailed for the purpose, with station at Front Royal, Va. The horses first purchased in this district were sent to Fort Reno, but in the army appropriation act for the fiscal year 1912 an item of $200,000 was included for the purchase of land in Virginia for a remount station, where the horses in that district will be developed in future. The new station is located at Front Royal, on the Blue Ridge.

The following statement, furnished by the office of the Quartermaster General, United States Army, shows that the horses purchased under the remount system are costing the Government much less than those purchased under contract:

Fiscal year 1909.

Cavalry horses, average contract price	$160 06
Artillery horses, average contract price	191 12
Young horses for remount depots	146 28

Fiscal year 1910.

Cavalry horses, average contract price	$173 24
Artillery horses, average contract price	205 25
Young horses for remount depots	127 45

Fiscal year 1911.

Cavalry horses, average contract price	$166 76
Artillery horses, average contract price	212 17
Young horses for remount depots	134 07

The age at which young horses are being purchased is becoming less than was originally suggested, quite a large number of 2-year-olds being selected. Mainly, however, these horses are 3 years old, and few, if any, 4-year-olds are bought.

It is expected that eventually all the horses supplied to the army will be purchased in this way. In fact, the contract system of buying is even more or less of an exception, the only recent contracts of importance being during the manuevers in Texas.

The remount plan in itself has everything in its favor and practically nothing against it. The farmer gets a fair price for his colt rather than a poor price on which a middleman formerly had to figure a profit. The army now has a range of selection which it never had before; it is not now necessary to "take the cats and dogs" or go without horses; and, above all, the writer ventures the assertion that the remount system has had a decided influence on the horsemanship of mounted officers in the army, for the simple reason that much more interest will be taken in a better horse concerning whose breeding something is known and whose history is known practically from birth.

Weak Points of the Remount System.

The remount system has two weak points, which are not, however, inherent in the plan itself, but obtained in the conditions surrounding the horse-breeding industry, due to the peculiar developments of horse breeding in the United States during the last forty years and the average man's lack of ability as a horse breeder.

The scarcity of suitable horses.—The scarcity of horses of the light type, from which the army supply must come, has been fully set forth in the foregoing pages. Under the present peace footing the army can and will obtain a fairly satisfactory supply of horses by the remount system; it can keep a staff of officers in the field looking for horses just as a large city firm of horse dealers keeps its buyers traveling, although at greater expense, because the army is looking for only a few classes of horses, while the city firm handles all kinds; the numbers the dealer purchases are therefore much larger and the average expense to be charged against each horse is correspondingly less. It is not claimed that the army can not now find the mounts needed under the present peace footing by means of the remount plan of purchase and development, but it is claimed

that there is no reserve; that a demand for a considerable increase in the number of horses used annually by the army—such, for instance, as would be necessary in case of war—could not be supplied in a satisfactory manner from the supply of horses now in the United States, large in numbers as that supply is known to be; and it is also claimed that in the comparatively near future the developments of the horse industry will be such that unless steps are taken to stimulate a waning industry by Government encouragement the army will be able to obtain its necessary horses only at greatly increased expense. The light type of horse will become more and more difficult to obtain, and the army horse scarcer and scarcer. The army can not be mounted on draft horses, and our farmers are now raising nearly two draft colts to one light colt.

People not closely familiar with the agricultural development of the country are wont to read complacently the magazine articles in which the wonderful development of the west is set forth in glowing terms. They are told that the settler is slowly but surely encroaching on the ranchman, that the saddle and lariat are giving way to the plow and harrow, and homes are building where cattle and horses roamed before. They do not realize that this western country was once the range of thousands of horses which were useful for army purposes, and that the inevitable result of the new development in the agriculture of that section is to make horses and cattle scarce. They read of the wonderful agriculture of the corn belt, the production of cereals, the massive machinery, etc., not realizing that the farmer is compelled by these conditions to get a maximum amount of horsepower out of each work animal, to have his horses as large of frame and as small in number as possible.

The tide in favor of heavy draft animals on farms where topographical and climatic conditions favor their use will not and doubtless can not, be turned. There is no reason why it should be turned. The army must look elsewhere for its supply and it is only plain business foresight and judgment for the Government to encourage the breeding of a type of horse, in suitable localities, that will be useful not only for the army but satisfactory to the farmer as well.

Lack of system in breeding methods.—The remount system as at present established is also incomplete in that it provides no means whereby the breeding of horses of the proper type can be encouraged. Everyone knows the innate fascination for the average mare owner to see how many different experiments he may make in mating. He may own a good, useful type of mare, and he will breed to standardbred, draft, pony, saddle and thoroughbred stallions, hit or miss, and not hesitate to try a jack to see what that will bring. The army buyers will boubtess do all in their power to advise mare owners how to breed, but their advice can only carry such weight as more or less acquaintance between the owner and the officer may effect. The only way to get anywhere in breeding is to be systematic, to adopt a policy and stick to it. The man who is always talking about crossing is usually the man who has more mongrels than his neighbors. The man who can cross successfully is the able breeder who needs no advice or assistance and who breeds horses far above the army standard.

The experiment made in Virginia in the spring of 1911 shows that farmers will welcome an invitation to enter into cooperation with the Government in the production of horses for the army. It appeals both to partiotism and the pocketbook. If such a plan is put into effect, the Government will know where horses are, it will know what they are, and it will be able to find and obtain them at a minimum cost.

A PLAN TO ENCOURAGE THE BREEDING OF HORSES FOR THE ARMY.

With the establishment of direct purchases from farmers in connection with the remount system, army officers almost immediately found that it was not an easy task to find the required number of suitable horses and the matter was soon given consideration by the War Department, with the result that the Secretary of War laid the matter before the Secretary of Agriculture in 1910 and representatives of the two departments were designated to devise means to remedy the situation. The result was a plan for the encouragement of breeding horses for the army. This plan appears in full in the Report of the Chief

of the Bureau of Animal Industry for the fiscal year 1910.* In brief, the plan was drawn so as to provide in time for a sufficient number of remounts annually for the mounted service of the army on the present peace footing. The country is to be divided into four breeding districts and 100 stallions purchased to stand for service free of charge for approved sound mares, the mare owner to give in return an option on the resulting foal during the year it is three years of age. The localities suggested for breeding districts are those where conditions are especially suited for horse raising, where the prevailing type of mares is most likely to approach that desired for the army, where a light type of horse will always in the long run be the most profitable to the farmer and draft horses least likely to obtain a firm foothold, and where mares are sufficiently numerous to give the stallions maximum service.

Fifty thoroughbred stallions, twenty-five standardbreds, fifteen saddle stallions, and ten Morgans are suggested.

Arguments for and Against the Plan.

Two arguments have been advanced against this plan—the first, that it is unnecessary because horses of the desired type are plentiful; the second, that by adding the amount suggested for the breeding appropriation ($250,000 the first year and $100,000 in succeeding years) to the amount now appropriated for the purchase of horses for the army, and thus adding $50 to $100 to the average price paid for horses, the necessary number could easily be obtained.

The writer believes that the figures shown on page for the relative numbers of purebred draft stallions in various States effectually answer the first argument.† It must be again plainly pointed out that there are now probably enough horses annually available for the requirements of the present peace footing of the army. The country should in wisdom, however, provide for a reasonably sufficient supply in case of war, and it should take steps to check the unquestionable decrease in the breeding of light horses. Cavalry is of the utmost importance in warfare, and we must sooner or later either encourage the

*See Circular 178, Bureau of Animal Industry.

†Table omitted from this reprint.

breeding of horses for the mounted service of the United States Army or dismount the cavalry.

The second argument voices a popular appeal which carries considerable weight, but it is very doubtful whether it would in any measure bring about the desired result. Let it be repeated that the army is now paying good prices to farmers for the horses it buys. Officers claim that they are paying somewhat more than farmers have usually received for such horses. One hundred and fifty dollars for an unbroken 3-year-old colt, or $125 for a 2-year-old, are not starvation prices as farmer's colts run. The purchasing officers are buying in the face of the competition of other buyers. For the Government to add gratuitously $50 or $100 to the price now paid would be reckless and wasteful extravagance. This argument has been advanced by persons who do not seem to realize the difference between the direct system of buying young horses for the remount stations and the old system of buying by contract mature horses for direct issue to troops. The former eliminates the middleman's profit and gives the farmer a fair price; the latter gave the farmer a price which was far below what a good mature horse was worth, and the whole system worked against getting good horses. If the contract system only were considered, adding $50 to $100 to a minimum contract price might have some effect, but the contractor would probably be the principal gainer. The price paid by the army for horses is now governed by supply and demand, just as that of any other commodity.

Again, if a given sum were added to the average purchase price and the country were plunged into war where large numbers of horses were needed, $50 to $100, nor twice those amounts would not supply the demand unless horses of draft breeding were taken. Witness the New York police department, with a contract price of $372.50 per head, scouring the country for seventy-five saddle horses per year of certain definite specifications.

Lastly, the Government would be no further ahead than before by adopting such a policy. The Government would have absolutely nothing to show for the added expenditure. The horses would be no better and would last no longer. The

same unsystematic methods now prevailing would still prevail. On the other hand, with the expenditure for breeding recommended by the Agricultural and War Departments, the Government would be able to develop a systematic and economical system of breeding; it would know what was wanted and would get it. It would also insure a reserve supply of horses if needed. It would not be worth while for the Government to pay $50 to $100 per head as a bonus or gratuity to the owners of colts, but it would be well worth that much for the Government to know what it was getting when a colt was purchased as a remount, to know that the horses bought for the army were bred for that purpose, and that there were others to select from if needed. A further advantage which would accrue to the Government's profit would be that the exact location of available young horses would always be known, and no time would be lost in hunting for them; much of the incidental expense which is now necessary for traveling could therefore be saved.

What to do with horses bred under this plan on which the Government does not exercise its option is not a difficult problem. It is proposed to use only first class, sound stallions, with good conformation and action. These stallions would be better than the average, and it is reasonable to suppose that their get would be also. Such being the case, those of the get which were not taken by the Government would be suitable for various uses as general-purpose horses, for farm work, saddle, etc. If the breeding plan is once put into complete operation there is no doubt that European buyers would be ready to take whatever they could obtain. It is also reasonable to suppose that on account of the high character of the stallions the percentage of unsound get would be below the average.

The effect which the plan would have on horse breeding in general would be decidedly beneficial. It would in the first place call attention to the advantages of certain localities for horse breeding and the suitability of certain breeds to certain localities (which has been neglected in the United States in al lines of stock breeding), and would therefore encourage specialization in horse breeding. It would give system in breeding where little now exists; and above all, it would direct immedi-

ate attention to the objection to the use of an unsound horse for breeding purposes, for no unsound stallion would be used nor an unsound mare bred.

The Present Horse-Breeding Work of the Department of Agriculture and Army Horse Breeding.

Shortly after the presentation of the army horse-breeding plan to Congress, Mr. August Belmont, of New York, offered the Government the use of two of his best known thoroughbred stallions, Henry of Navarre and Octagon, to be used to encourage the breeding of army remounts. These horses stood during the season of 1912 at Front Royal, Va., and were available for public service on the terms outlined in the Governments' plan. About fifty mares were bred, and options were taken on the colts at $150 each at three years of age. The agreements were so drawn that the Government would waive its option on horses promising to mature over sixteen hands. Half-breds over sixteen hands in Virginia furnish the most of the high-class hunters from that section, and a concession on that point was deemed desirable.

Mares bred were required to be straight-gaited trotters without faulty conformation, such as curby hocks, and free from the following heriditary unsoundness:* Bone spavin, ring-bone, side-bone, heaves, stringhalt, roaring, periodic opthalmia, lameness of any kind, and blindness, partial or complete.

The experience of the department in this case has demonstrated that the army horse-breeding plan is practical. Mare owners willingly enter into the agreement when they realize that it is one of mutual advantage. No difficulty whatever was experienced, and a much larger number of mares would

*This list was compiled several years ago by the Bureau of Animal Industry for another purpose, after consultation with members of the American Veterinary Medical Association and successful horsemen in various parts of the country. A Morgan stallion loaned by the bureau to the Massachusetts Agricultural College stood during the season of 1911 on similar terms, with satisfactory results.

have been bred had the horses reached Virginia somewhat earlier and had Octagon not had a serious attack of distemper shortly after his arrival.

The expense of this trial have been slight, but such as have been incurred have been paid from the appropriation for co-operative experiments in animal feeding and breeding, in the act of Congress making appropriations for the Department of Agriculture, which provides authority for such experiments. It is really only an experiment, but so far as it has gone it is satisfactory. It should now be followed with a general introduction of the breeding plan.

The work in carriage-horse breeding in co-operation with the Colorado Experiment Station may have some bearing on the work of breeding army horses, as the stallions bred in that project should make useful sires of artillery remounts; and the Morgan Horse Farm may produce some of the stallions needed for the New England district of the army horse-breeding project. However, it should be specifically stated that neither project was outlined with army demand in view. The army horse project, if provided for by Congress, will have no effect whatever on the purpose, plan or methods of either the carriage horse or Morgan breeding projects, but horses bred at those stations may be used incidentally in the army work.

SUMMARY.

1. All modern countries, except those in America, have found it necessary to encourage the breeding of horses suitable for military purposes.

2. Little or no difficulty was experienced in mounting the armies of the Civil War with suitable horses.*

*The statistics bearing on this subject would indicate doubt as to this statement:

In 1863 there were in the Army of the Potomac thirty-six regiments (cavalry), whose effective strength varied during the six months from May to October between 10,000 and 14,000 men. This body of cavalry requires a monthly average of 5,850 horses.

This is equivalent to a loss of two and one-half horses per man, or a rate of five horses per annum.

The report of the Secretary of War, in referring to the above, stated:

"If a similar state of affairs existed through all our cavalry, its 223 regiments would require 435,000 horses annually."—(EDITOR.)

3. The draft-horse industry has been developed in the United States since the Civil War, and in several States there are now more than four times as many purebred draft stallions as purebred, Standardbred, Thoroughbred, and coach stallions, notably in Iowa, Minnesota, Nebraska, North Dakota, South Dakota, and Utah. In North Dakota the ratio is nearly eight to one.

4. The difficulty and expense of obtaining suitable military horses is illustrated by the mounted police of our cities, whose mounted patrolmen combined would not equal a regiment of cavalry on a war footing. The New York police department buys only about seventy-five horses annually for its mounted police, and has to pay nearly $400 each for them.

5. The militia requires good mounts for its cavalry and artillery, but must depend on the holdings of livery stables and what can be picked up in other ways. Very little systematic work has been done in breeding horses for the militia.

6. The mounted service of the army is now being furnished in a satisfactory manner with horses purchased and developed under the remount system.*

7. An outbreak of war would necessitate at once more than twice the number of horses now in the regular army, and hostilities would probably require complete new issues every four to six months.

8. The remount system is working satisfactorily, but it will never be completely effective until steps are taken to alleviate the present scarcity of horses of the type needed for military purposes and to produce such horses in a systematic manner.

9. The plan devised by the Agricultural and War Departments to encourage the breeding of horses for the army is necessary, because horses of the proper type are not sufficiently numerous to supply the army in case of war, and the time may soon come when it will be difficult to supply those needed in peace; it is economical, because the expense of the plan, averaged on the colts purchased, would be met by value re-

*Many officers feel that in spite of the great improvement in service horses due to the remount system, the animals received therefrom are, in general, not yet of proper type and quality.—EDITOR.

ceived, in the better quality of the colt, the fact that he was bred for the purpose, that the Government would know what it was getting, that the horses needed for the army would be more readily found, and on account of the beneficial effect on horse raising in general. It is practical as has been shown by the experiment in Virginia during the season of 1911.

10. To add $50 or $100 to the price now paid for remount would be wasting money. The farmer now receives as good price for his colts from the army as anyone else pays. If this plan were pursued, the Government would make no progress whatever toward the solution of the breeding problem, for it could have no influence on the methods used except in an indirect and futile way.

11. The general effects of the plan on horse breeding would be decidedly beneficial. It would tend to specialize horse breeding, it would discourage the breeding of unsound horses, and it would open up the market for horses of the army type by creating a supply that foreign buyers would soon take to their advantage.

12. The horse breeding projects of the Department of Agriculture now in progress may lend somewhat to the army horse project, but they were not designed with that in view, and it would not be proposed to alter their purpose on account of the army project.

THE FIRST AEROPLANE UNDER RIFLE FIRE.*

IN November, 1911, the Italian daily papers had much to say about the succesful dropping of explosive grenades from an aeroplane. It is very remarkable that since that time nothing has been printed about any repetition of this matter. However, very lately some Italian papers printed a letter recounting a similar trial, the writer of which, Lieutenant Rossi, states he made in company with Captain Montu. In this letter

*Translated from *Militar Wochenblatt* No. 35, 1912, by M. S. E. HARRY BELL, U. S. Army.

he reports that but one grenade was dropped and that the aeroplane received a hot fire, several bullets hitting the machine and one hitting Captain Montu.

According to the letter, the areoplane started at 7:00 A. M., rose to a height of 600 meters, followed the coast line for about fifteen kilometers and then turned toward the Arab camp. When the turn was made some rifle shots were heard, but no attention was paid to them. After covering an additional fifteen kilometers, the aeroplane flew over the Arab camp and at the same time received a hot rifle fire. Undaunted, Lieutenant Rossi steered direct for the Turkish tents and gave Captain Montu, sitting behind him, a sign to hold the bomb in readiness to drop. Immediately thereafter the captain dropped the bomb and the machine was quickly turned to watch the effect. A dense cloud of dust was seen, as well as a number of camels and horses scattering in all directons. Now the rifle fire became so heavy that all haste was made to get out of the danger zone. A bullet hit the aeroplane; the trial to ascend higher miscarried. When the aeroplane was turned to the left flank of the camp, Captain Montu was wounded and at that very time the motor gave out. Just as the pilot prepared to glide, the motor suddenly resumed its work. Hardly had the former altitude been reached again when the aeroplane was struck by two bullets. The motor did not now work regularly; it emitted a peculiar noise. In addition, the wind strengthened and also was now in the face of the aeronauts. The situation was very precarious. The Arabs, estimated by the writer of the letter at more than 2,000, kept up a hot fire; the aeroplane pitched, being thrown by the wind first to the right and then to the left; the motor might be expected to give out at any moment and the aeroplane might lose its equilibrium easily by the movements of the wounded captain. Twenty-five kilometers had still to be covered before a landing could be attempted in security. Fortunately the rifle fire soon ceased. As the motor worked badly, the altitude of 600 meters could not be preserved and, in order to avoid hostil patrol, a material detour had to be made.

Five minutes before 8 o'clock, that is after an hour's journey, a landing was made in the zone occupied by Italian troops. It was then ascertained that the captain was not

dangerously wounded, the bullet having piecred the iron seat and thus losing most of its penetrating force. Two bullets had pierced the propeller, without having caused much damage.

It is impracticable to ascertain the truth or falsity of this letter. In any case it is remarkable that no official reports thus far published, make any mention of any bombs having been thrown from airships.

As a matter of fact, there exists an entirely unjustified opinion as to the great effect caused by such bombs. In Germany for instance, it is the general opinion that the effect of a shell is good, if at least one piece of the shell falls on each square meter of the beaten zone. The number of pieces of shell decreases with the decrease in weight of the bomb. It is calculated that the 15 cm. shell (40 kg.) covers a zone of approximately 2,000 square meters; the shell of the light field howitzer (15.7 kg.) thus would cover about 700, that of the field gun (6.85 kg.) about 300 square meters. The weight of the bombs carried by aeroplanes is generally given as from 1 to 2 kg.; thus a space of from 50 to 100 square meters should be endangered. Even if we double that space, the smaller pieces, which are unimportant when the shell bursts at long range from the target, might still do considerable damage when dropped from an airship at close range, the beaten zone would then be about 100 to 200 square meters, while the Italian newspapers of last November stated that zone to have been 800 square meters, *i. e.*, four times as large as is possible. This shows that the effect of the bomb is greatly over estimated, is even estimated to be greater than we attribute to our light howitzer shell.

THE MOUNTED TROOPS OF THE EXPEDITIONARY FORCE *

A SUGGESTED REORGANIZATION.

From article in London Times, Friday, February 16, 1912.
(By our Military Correspondent.)

VERY notable progress has been made during Lord Haldane's administration of the War Office in the organization and preparation for war in our regular forces at home. So far as the cavalry and mounted infantry are concerned, it must however, be admitted that neither for the infantry division, nor for the expeditionary force as a whole, have we hit upon an organization which is of a completely satisfying character.

The question of cavalry effectives was fully dealt with by this journal on the three occasions during the last four years when the cavalry division was assembled for training. It was demonstrated with facts and authentic figures in support, that we could not mobilize our cavalry promptly with trained horses up to the standard of our war establishments, and it was also represented that the system of boarded-out horses, though useful in its way and certainly much better than nothing, was not completely satisfactory for a cavalry division liable to be thrust into the war furnace by the fourteenth day of mobilization, if not sooner.

The crisis of last autumn completely justified these criticisms. We found that we were very short of trained horses; it is not necessary to name the deficit. The boarded-out horses were called in, and it was found that not more than forty per cent. of them could be regarded as fit for the field within a fortnight. Several hundred horses were hastily purchased, but only a very small portion of these were fit to be placed in the

*Furnished from War College, Director General Staff.

ranks at once. Had war broken out in July our cavalry would not have been able to take the field at once absolutely complete. Time has now been allowed us to train the purchased horses, and nearly all regiments at home are in a pretty good position. Could we hope to see an addition made of fifty horses to the permanent establishments of each cavalry regiment at home we might rest satisfied that, so far as the cavalry were concerned, we were in a relatively favorable position. We owe a debt of gratitude to the Germans for helping us to put this matter right, but one of these days their valued co-operation may be lacking.

Peace strengths, vital though they are to cavalry, are, however, only one side of the question, and there is another, namely organization. It is of course recognized, at all events by soldiers, that we are imprudent to send cavalry regiments on service with only three squadrons to fight hostile cavalry regiments which will almost certainly have four, and nothing is easier than to suggest that the number of our squadrons or of our regiments, or of both, should be augmented. But when we study ways and means the prospect of effecting any useful purpose by such suggestions becomes less bright. The restricted resources of our military finance and the far from favorable statistics of recent recruiting render it quixotic to press at present for such additions. Neither the money nor the men can readily be found for them, and it is therefore better, or at all events more practical, in any proposals that we may make for reform, to respect the bounds set by our present establishments and expenditure, and to limit ourselves to the consideration of how we can make a better use of our existing resources. It can be shown that, even within such limits, much can be done.

PRESENT ORGANIZATION.

The general public cannot be expected to carry military organization in their heads, and it may therefore, be well to explain briefly the manner in which the cavalry and mounted infantry allotted to our expeditionary force are disrributed and arranged. There are, broadly speaking, three categories of mounted troops, each with its own functions, though of course,

a commander will group and distribute his cavalry as he pleases. First there is the cavalry division, variously described as the army, strategic, or independent cavalry, of which titles the latter is apt to mislead. This is the arm of the Commander-in-chief and is destined to obtain for him, in co-operation with the aviators, such information as he requires, by pushing into the zone separating the bulk of the army form the enemy, and in the direction in which it is desired to reconnoiter. Obviously, the more cavalry and the more aviators that we possess, the better can this very important mission be carried out.

Secondly, we have two mounted brigades, composed of cavalry and mounted infantry, and known as the protective or screen cavalry. These brigades do not exist as such in peace, and are only formed on mobilization. They, also, are under the direct orders of the commander of the army to which they belong, or to such part of it as he pleases to allot them. They are intended to give timely information of the enemy's approach and to protect the infantry columns behind them, but their use in support of the army cavalry is not excluded, and the chances are that they would frequently be drawn into the orbit of the army cavalry and would share in its adventures. Third and last comes the so-called divisional cavalry, composed in our case, but in no other army, of two companies of mounted infantry with each division of infantry, directly under the orders of the divisional commander, and intended to assist the infantry in the immediate protection of the division when halted, on the march, or in battle.

THE CAVALRY DIVISION.

A rapid examination of these several parts of our mounted troops will show the advantages and disadvantages of our present arrangements. Our cavalry division has four brigades, each of three regiments of three squadrons, besides two horse artillery brigades, four field troops, signal units, train and ambulances. It has become an undeniably formidable instrument of war, thanks to the modern revival of our cavalry, to the initiative of a few choice spirits in the arm, to the hard work of all, and last, but not least, to the facilities granted by Lord Haldane for the annual exercises of the division as a whole.

But the division, good as it is, is on the cumbrous side. It has thirty-six squadrons compared with the normal foreign type of twenty-four squadrons, and it has 5,000 sabers to the German 3,700 and the French 3,600, which are considered by some soldiers to be quite as many as one man can control. It is of course, our ewe lamb, for while foreign powers can place in the field a dozen cavalry divisions or more, we have but one at home. The character of our islands is not very favorable to the employment of a cavalry division of such exaggerated strength, while, as we have only one division, there is the further disadvantage that no opportunity ever arises for it to measure itself as a whole in peace against a unit of similar strength. For all exercises other than those against a marked enemy, our practice consequently is to split up the division into two smaller divisions, which we call half divisions, and thus to deprive ourselves of the chance of practicing in peace the formation which we shall adopt in war. Could any solution be found which would enable us to create a second cavalry division without rendering the service of protection less efficient, and without much additional cost or increased numbers, it would certainly be very advantageous. We should then strengthen the offensive power of the expeditiory force and provide foemen worthy of the other division's steel in the usually bloodless exercises of peace. Cavalry is the arm, *par excellence*, of the offensive, and cavalry relegated to a defensive role is cavalry misused.

MOUNTED BRIGADES AND DIVISIONAL CAVALRY.

Next we come to the mounted brigades, which are looked at askance by most of the best officers in our army. These brigades have no permanent existence in peace. In war they are dissimilarly constituted, and the troops composing them are unequal in efficiency. One of them has one cavalry regiment and two battalions of mounted infantry, while the other has two regiments of cavalry and one battalion of mounted infantry. It is unnecessary to remark that the tactics of cavalry and of mounted infantry are different. Our regular mounted brigades are never seen in the field. No one knows how to handle them, and the handling of one of them would not suit

the other, since this other is differently constituted. It must not be supposed that our general staff is not fully aware of the disadvantages entailed by our reliance upon mounted infantry in European warfare against a regular army. Our mounted infantry are the cavalry of poverty, and they are merely used as an expedient to make up for the weakness of our cavalry. Our mounted infantry are stout fellows, admirably led by the pick of the young officers of our infantry, but it would be dangerous to employ in first lines at the outbreak of war, and against highly trained troops permanently organized, a force like our mounted infantry, which does not possess the solidity and assurance arising from continuous training and permanent existence. The same criticism applies to the two companies of mounted infantry which form the wholly inadequate and very unsatisfactory divisional cavalry of our infantry divisions. The leading principle that our expeditionary force is organized to fight a civilized enemy in a European country has been completely lost to sight by the inclusion in this force of troops which are not of the first quality.

THE MOUNTED INFANTRY.

The good service performed by mounted infantry in some of our recent colonial wars need not prevent us from questioning its utility in a war with a European power. Were the mounted infantry battalions and companies of our war organzation given a permanent existence in peace they would quickly become extremely efficient troops, but in this case they would cost nearly as much as cavalry without posessing the cavalry advantage of shock tactics. Trained as they are, and flung into the field as they must be with a jumped-up organization, they are troops of inferior worth, and it is high time that we should recognize the fact and act accordingly. The sections of each mounted infantry company are filched, on mobilization, from the ranks of our infantry at home, and are commanded in war by an officer who will be unknown to the greater number of his men, while they will be unknown to him. It will be the same in the mounted infantry battalions. Having no permanent existence in peace, the mounted infantry companies alloted to our infantry divisions in war are not able to work

with these divisions during the training of the year. They will be ignorant of the commanders and troops whom they will serve and of the whole of the divisional machinery. Our modern infantry divisions figure up to some 20,000 men with 1,200 wheeled vehicles and over 7,000 horses. They cover a considerable area of ground on the march, at rest, and in battle. Their service of immediate protection is a serious and onerous duty which cannot be efficiently performed by an improvised body of some 300 mounted infantry, hustled together and shipped off to war after a confused process of mobilization which is the despair of every one who examines it.

The effect of these arrangements upon the infantry of the line is perfectly deplorable. For the eighty-four mounted infantry sections and three machine gun sections which make up the mounted infantry of our war establishments we have to draw upon seventy-four infantry battalions on mobilization, thus depriving these units of nearly 4,000 of their best officers and men at a moment when they can least be spared. If we draw these men from the army reserve we take men who have probably lost all the little they ever knew of horse management and of riding; if from the men with the colors, we deplete the already too attenuated nucleus upon which the reserve has to form. We must certainly keep back at our depots enough men trained in mounted infantry duties to make good casualities in the mounted infantry at the front, so that by the procedure to which we are committed we deprive the arm which wins battles of not less than 5,000 of its most valued bayonets. On these grounds alone our present system is indefensible, for the balance in our infantry between serving soldiers and reservists already inclines unduly to the side of the reservists, and we have no right to impose upon our infantry this additional strain. If, then, any other means can be suggested for the provision of the necessary protection of our infantry divisions, and for the performance of the duties now alloted to the mounted brigades, there would be much greater profit than loss in ruthlessly cutting out the mounted infantry from our war organization.

It may seem illogical to suggest at the end of this argument, that the present training of the mounted infantry should be

continued, but nevertheless it would be prudent to do so for several reasons. Longmoor is probably destined to become the high school of training for our Yeomanry so long as this force is not armed with the cold steel, and so long as its tactics must consequently and necessarily have more affinity to that of mounted infantry than of cavalry. The mounted infantry course is a splendid training for young infantry officers, N. C. O's. and men, as it opens their eyes and widens their horizon. For colonial campaigns we may very likely require mounted infantry in the future as in the past. For the internal security of certain of our possessions, and for various wars which need not now be discussed, we may require very large numbers of mounted troops, and it would therefore be prudent from many points of view to continue the Longmoor course at present, and provide ourselves with a large number of men who have done the training and will be able in course of time and after hardening with practice to take the field and render efficient service.

REFORMS SUGGESTED.

If we were to create a second cavalry division, and to devise improved protection for our infantry divisions, we might very well abolish our regular mounted brigades. A second cavalry division would be better value to support the existing division in the field, and better value as screen cavalry—if a commander decided to employ it for this purpose—than the mounted brigades. The chances are that a commander would not often desire to fritter away his cavalry upon defensive duties, for a second cavalry division would give him increased chances of smashing the hostile cavalry, in which event the defensive role of our mounted brigades, which already tends towards supersession by aviation, would become still further diminished in importance.

We have thirty-six squadrons in our present cavalry division. We have nine squadrons in the three cavalry regiments allotted to the mounted brigades. If we were to bring home three of our cavalry regiments from South Africa—as seems to be legitimate in view of the South African Defence Bill—we should possess the fifty-four squadrons required for

two cavalry divisions each of three brigades or twenty-seven squadrons. The division of three brigades would be a more handy command than the present one of four brigades, and the offensive value of the expeditionary force would be much enhanced by the inclusion in it of a cavalry corps of fifty-four squadrons as good as any in the world and better than most.

There remain the infantry divisions to be considered. The principle should be accepted that whatever protective troops we allot to the infantry divisions—whether cavalry, mounted infantry, or cyclists—they must be permanently organized and must form a permanent part of the divisions and be continuously trained with them. This principle must be held to tenaciously, for nothing short of it will enable the duties to be satisfactorily performed. We might, of course, if we liked, take three regiments from South Africa and three from the mounted brigade division. This would, however, deprive us of the offensive value of six good regiments and would prevent us from forming a second cavalry division and from reorganizing the division which we possess. It is common knowledge that cavalry hate to be tied to the apron-strings of an infantry division, and it is one of the most difficult things in the world to make people understand that the cavalry attached to a division of infantry forms an inalienable part of it, and to present the constant abstraction of the cavalry for some other service. In peace, again, it is not easy to obtain the continuous service of such cavalry in the training of the infantry division, for it is necessary for all cavalry to take part in cavalry brigade and divisional training. There are many good reasons why each infantry division should have a cavalry regiment permanently attached to it, but if we recognize that in this imperfect world the attachment is not absolute, but quite the reverse, and that this solution debars us from carrying out other reforms, we must be content to cast about for some alternative plan.

If mounted infantry are unsatisfactory, cyclists suggest themselves. For all campaigns in the British Isles and in Western Europe cyclists would serve our purpose uncommonly well. In all countries where good roads abound cyclists are in many respects as useful as cavalry for the immediate pro-

tection of an infantry division, and in some respects they are more useful. They are more tireless, cover more ground, and when firmly led have more tenacity. They can stable their steeds anywhere, and a little oil is all the forage they need. We have, it is true, no regular battalions of cyclists, but we have six battalions of infantry at home which do not enter into the composition of the expeditionary force and might very well become divisional cyclist battalions during their tour of service at home. The rifle battalions of the army naturally suggest themselves for the rôle. It would neither be necessary nor advisable to alter their character in any way. Infantry they are, and infantry they should remain. But they might be supplied with cycles, be trained to their use, and be taught their rôle throughout the exercises of the year. They could form centers of instruction for our territotial cyclists and enable us to ascertain what the latter are worth, a subject not devoid of difficulty without a regular model with which to compare them. Our regular cyclist battalions might be able to take the field 600 strong without reserves, and would in this event be double the strength of the present divisional mounted infantry and far more efficient. Our divisions would then have an improved and enlarged service of protection, highly trained, very efficient, and ready on the first day of mobilization.

This latter advantage is not to be despised whether from home defense or for war on the continent of Europe. The advantage for home defence is too obvious to need remark. In the case of war on the continent of Europe our infantry are ready before the cavalry, and would probably be the first to reach the theater of war. Without mobile troops our infantry might be without light and air and would be liable to be surprised and smothered. It would be a very great advantage to our six divisions to have with them 4,000 good cyclists, able and ready to take over at once the service of immediate protection. These cyclists could, at need, support the cavalry corps, and companies of them could be used as a screen in any direction for purposes of security or deception. In battle when their protective duties were ended, they would form a reserve which could be despatched rapidly to any part of the field. We scarcely know the services that cyclists could render, because,

with our stubborn conservatism, we have not given the idea a working trial with regular troops on a sufficiently large scale.

It only remains to say a few words about despatch riders. An infantry division requires a few mounted men, say a squadron of four troops each twenty-five strong, for the purpose of despatch riding. These might very well be supplied by the Yeomanry, who could easily find us 600 well mounted men who could get over a country better than any cavalry in Europe and would be alert and intelligent.

CONCLUSION.

By making the changes proposed we should loose the mounted brigades, but we should add eighteen squadrons to the army cavalry, imporve its mobility, handiness and organization, double the strength of the protective service of the divisions, make this service permanent, and restore some 5,000 bayonets to our infantry, which has need of them.

The only additional and recurring cost would be the expense of a second cavalry divisional staff, and of the purchase and upkeep of the cycles for the infantry. Against this expenditure must be set the saving in the upkeep of paraphernalia for the mounted brigades, and the further saving caused by bringing home the cavalry from South Africa. The provision of barracks for these regiments at home would not be a direct consequence of the changes advocated, for these barracks will have to be found in any case when the regiments come home.

MACHINE GUN TACTICS.*

ABOUT thirty years ago the American Engineer Maxim succeeded in inventing the machine gun, *i. e.*, the construction of an independent and continuously firing small arm. As in the case with nearly every new invention the machine gun was regarded with distrust by all states. The somewhat

*Translated from *Militar Wochenblatt*, Number 28, 1912, by M. S. E. HARRY BELL, U. S. Army

complicated breech mechanism and small faults inherent to the new machine gun as well as all new creations was the cause of doubt being expressed as to its suitability in war. Only after Maxim had succeeded through hard work to overcome the minor faults and to simplify the mechanism materially, a number of states decided, at the close of the late eighties, to introduce the new arm in fortresses, war ships, and for colonial service. The large majority of the states declined to equip their field armies with it because of supposed unsuitability.

The machine gun received its baptism of fire in England's colonial wars in 1893 against the Matabeles; in 1895 it was used against the mountain tribes in East India and in 1898 in the Sudan Campaign. In these cases of course, there could be no question of war experiences. But in the South African war from 1899 to 1902 both sides employed numerous machine guns under the most divers battle and terrain conditions. The Boers were masters in the art of utilizing the machine guns' great fire power in the defense.

Still all these successes could harldy overcome the original general distrust. But few states, Germany among them, came to the right conclusion, based on these war experiences, as to the value of the new arm in a campaign and introduced it into their field army, even if only sparingly in the start.

The Russo-Japanese War finally brought about a complete reversion of the original opinion. The machine guns justified their utility in war in that conflict and proved their value in the most divers situations. They proved themselves to be a powerful almost invaluable auxiliary arm for infantry as well as for cavalry and finally took their proper place in the series of arms used in warfare.

At the beginning of the Russo-Japanese War there were but few machine guns of different models with the fighting troops, but the number was rapidly increased. Russia had five machine gun companies of eight pieces, four of them in Europe, one in East Asia. As the value of the new arm was soon recognized however, new machine guns were purchased in all haste and as soon as independent companies could be formed they were assigned to the infantry divisions and rifle brigades, attached to a certain regiment in each. Eighty

machine guns participated in the battle of Liao-Yan in September, 1904.

During the second part of the war the larger cavalry commands had machine gun detachments of six guns, Madsen model, attached to one cavalry regiment; later on each cavalry and cossack regiment received a detachment of two pieces.

Japan had made trials with machine guns before the outbreak of the war, but there was no regular machine gun organization in its army. But as the first few contacts with the enemy showed the excellent value of the gun, the arsenals at Tokio worked with feverish haste to produce machine guns, Hotchkis system, which were sent, together with what could be purchased in Germany of the Maxim models, to the infantry division in the field in the shape of detachments, battalions. As that method of organization proved unsuited during the course of the campaign, and after more machine guns had been procured, small detachments were assigned for trial to each infantry regiment. Concerning this organization and conclusions drawn by Germany from the result of the war, we will speak later. It is now the intention of Japan to attach a detachment of four machine guns to each infantry battalion and cavalry regiment, partly the Madsen system, but for the greater part the Maxim system. The Hotchkiss machine gun has not yet proved its value; still, France and Japan are engaged in perfecting the system.

In the following we will illustrate our system of tactical employment of machine guns based on the experience gained in the Russo-Japanese War.

No matter whether organized into companies or battalions, machine guns can never replace the artillery, neither can they carry on a prolonged fire fight. The peculiarity of the arm, especially in its enormous consumption of ammunition in a short time, precludes the possibility of that arm carrying a fire fight to the finish. The employment of machine guns should be confined to important phases in the battle and they should take only well paying targets under fire.

In Germany we have sixteen machine gun battalions and one hundred and eight machine gun companies. The main difference between them is their mobility, which also governs

their employment. By reason of most machine gun battalions having four-horse teams and because all men serving the guns are enable to ride they are so mobile that they can follow the cavalry into any sort of terrain. In time of peace they are, as a rule, attached to Jäger battalions; in time of war they are attached to the cavalry divisions, giving the latter a very great addition in fire power. Many opinions have been aired as to the suitability of the peace arrangement; some hold that in peace time the machine gun battalions should be attached to the troops whom they are to accompany in war; a number of states, as Russia, Japan and Austria, already have a permanent machine gun organization attached to cavalry regiments and the experiences of the struggle in 1904–5 seem to uphold the correctness of that procedure; with us, however, our cavalry has the use of the machine guns only during the very few maneuver days.

Together with the horse batteries and cyclist companies our machine gun battalion will be the backbone of the cavalry division. Where the question is of reaching or holding important points, the great fire power of the machine guns will be efficiently felt. In a future war machine guns will be indispensable to cavalry either in dismounted fights or other exploits of the cavalry.

All machine gun companies are attached to infantry regiments and in battle are under the immediate orders of the regimental commander. In general their mobility is no greater than that of the foot troops, as only a part of the personnel can ride on the pieces, which are drawn by two-horse teams. The smallest battle unit is the two-gun platoon; the latest regulations absolutely prohibit the splitting up of the platoon. The trot can be used only when the object of battle can be reached no other way. It is left to the discretion of the regimental commander whether to hold the entire machine gun company at his disposal or whether he divides it for assignment to the two battalions. If the regiment acts alone or on one flank of a larger body, it will be found advisable to hold the machine guns as a mobile reserve to insert them at some decisive point and save their power for important moments in the battle.

If a rencontre is expected it will be advisable to attach the machine guns to the advance guard; the latter to be able to quickly occupy and hold important points, thus giving the main body time and room for deployment. In this case machine guns can perform invaluable service. If the task is completed and if sufficient infantry is on the firing line, the machine guns will be drawn from the advanced position and held in readiness for other tasks.

In an attack on a fortified position the place of machine guns is in the most advanced line, there they will facilitate the in antry's advance; regulations require them to participate in obtaining the fire superiority and in carrying forward the attack. Regulations also caution against premature employmen of machine guns, in which case the commander easily loses the opportunity of their better employment. Regard for the consumption of ammunition also demands machine guns to open their fire only at effective range and against tactical important targets. A good example of achievements of machine guns held in reserve in the start is furnished by the following episodes of the Manchurian War. In the battle of Haykontai in January, 1905 the Japanese had approached the Russian position up to 200 or 300 meters and considered the defenders so much shaken that they decided on the assault. Suddenly the six Russian machine guns, thus far held in concealment, opened fire and the Japanese attack came to grief; the attacking troops fled in all haste. In the end the Japanese declined, wherever possible, to atack that part of the position where machine guns were supposed to be.

Machine guns are intended to augment the artillery fire at infantry ranges. Such method of employment is found especially in the Japanese army. For instance, at Mukden, March 1st, the machine guns of an entire division were inserted against a Chinese farm which served the Russians as a rallying point for their trenches. As soon as the machine guns opened fire the Russian fire ceased, but again broke out when the former became silent. The Japanese infantry utilized these forced pauses in the fire fight to advance, by rushes, on the hostile position.

Three machine guns of the Tenth Japanese Infantry regiment acted in this manner against a field work on the 2d of

March. On March 5th, in the battle of Mukden, the Japanese guard division had fourteen machine guns in action to support the infantry attack.

Although our regulations for machine guns state that the best position for them is one higher than that of the infantry and in the rear of it, they also authorize the procedure mentioned above.

After the attack has succeeded a part of the machine guns must quickly be at hand in the captured position, to effectively take part in the fire pursuit from there and to guard against probable reverses.

If on the other hand the attack should fail, the machine guns which have been held in reserve, must in conjunction with the artillery, provide a ralying point for the retreating troops. The moral effect of their fire, which is said by eye witnesses of the Russo-Japanese War to be supreior to that of artillery fire, will soon enable our infantry to again make a front.

Concerning the employment of machine guns in defense, no hard and fast rules can be laid down which would cover all eventualities. It will depend on circumstances whether the machine guns are taken into the position at the start or kept in rear to be employed according to need.

Requiring but little space, machine guns are especia ly suited to cover with their fire important lines, frontally or flanking, and to reinforce the infantry fire with celerity and force on threatened points.

Cover for machine guns should be provided in advance in places where their employment appears to be certain. This was done in the battle of Mukden. A part of the 17th division occupied Ihoto and took a position surrounding the town on three sides. Positions for machine guns were prepared in advance at nine different points. It would have taken three times the number of machine guns available to occupy all these points at once. It was not yet known from which side the attack would come, and it would have been erroneous to chain the guns down to a certain place in the start.

The position of machine guns should be kept secret from the enemy as long as possible. At points where there is no doubt that they must be used they should be posted at once.

Such points will be projecting points of the position where with their fire they can cover the field of attack from a flank. If they are posted in front of the position, they will require infantry protection or especially constructed guarding obstacles.

In the defense machines should never prematurely open fire, but should hold their fire for tactically important targets and decisive battle phases. In the engagement at Waugthiano-peng a Japanese company attacked Schaschan. Four Russian machine guns opened fire on the thin skirmish lines at a range of 1,000 meters, causing no loss whatever. The attack continued and the moral effect of the machine guns was entirely lost.

Employment of machine guns by both sides in a fortress warfare will be found of great advantages. We have but few actual experiences in war to go by, however, as during the investment of and assaults on Port Arthur machine guns were employed only in the last stages of that fortress war. They undoubtedly will prove of value in the defense of as well as in attack on outworks. But their main role probably will be at the short range fighting and assaults, especially in the case where the artillery has to cease firing for fear of hitting its own troops.

Machine guns will undoubtedly perform excellent service to the besieged troops in the defense of sectors, in sweeping roads and in flanking ditches, etc. Machine guns posted in daylight to fire on routes of approach and obstacles can achieve good results in firing by night, the more so now as they can be assisted by the use of searchlights and illuminating rockets.

In sorties machine guns are indispensable, especially due to the fact that in such undertakings artillery can not be taken along.

It has been shown that machine guns, when protected by hinged shields, timely placed into position and served by an experienced personnel, can defeat an assault at the very last moment. The useless assaults of the Japanese on Port Arthur and the erroneous losses suffered by them therein furnish instructive examples of the fire power and effect of machine guns.

MORGANS AS ARMY HORSES.*

By Major F. A. BOUTELLE, U. S. A., Retired.

IN an article in the January *Bit & Spur* upon the Subject of the retirement of Mr. James R. Keene from the breeding of the thoroughbred, Miss Kate Greenleaf Locke almost appears to sound a swan song. "Thus did men love horses only a decade ago." Have men lost their love for thoroughbred horses? I hope not. If they have American manhoood has lost very much:

> "For if you efface the charm of the chase,
> From the land, and uproot the stud;
> Then good-bye to the Anglo-Saxon race,
> And farewell to the Norman blood."

Rascality, of course, killed the sport of gentlemen, but it seemed hardly necessary to let it die in such a way. Surely, if other sports can be and are so protected as to remain popular, horse racing could have been.

Why the honest thoroughbred should have been so far controlled by thieves is hard to understand. Many good men have abandoned the race track, as good men periodically desert politics in many of our large cities, because the atmosphere which has enveloped the situation has become intolerable. In politics this has invariably worked its own cure, for good men found it necessary to return to the political arena for public protection. Let us hope they will again take up the thoroughbred before he has disappeared. About the only use suggested for the thoroughbred, at present, is the cavalry service. I love the thoroughbred, I like to say "thoroughbred." It leaves a good taste in my mouth. I ride a thoroughbred and the spirit

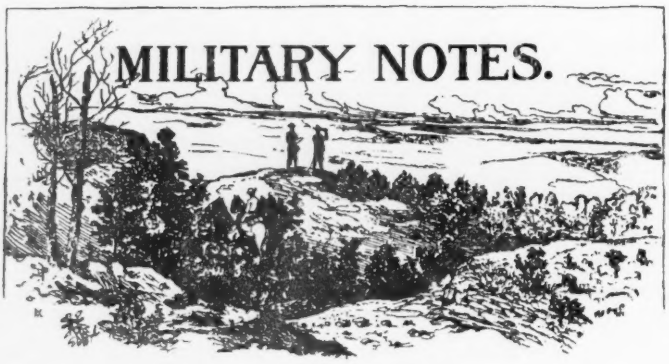
*From *Bit and Spur* of April, 1912.

which emanates from him makes my old weather-beaten body almost young again. I cannot bear the thought of his being practically eliminated from our lines of horses. I think, however, it would be a great mistake to adpopt him as a type of horse for cavalry purposes. He is too hot tempered to be controlled in the ranks and is too fine skinned and generally delicate to endure the rigors of bad weather, without the artificial covers which have made his skin as thin as parchment. He cannot, at all times, find his regular grain, and he cannot do without it, as can his coarser cousin. He has a better "thinker" than the scrub, and when he is uncomfortably hungry he worries more.

My duties as a cavalryman kept me on the frontier for many years and I had, in our Indian campaigns, abundant opportunities for observing the different kinds of horses which were furnished in our then haphazard system (?) of purchasing. Our fine, rangy, park-like animals did very well as long as the regular allowance of forage could be obtained, but when there was nothing but such grasses as were available, often very short, the smaller, more compact ones kept in fair condition, when the finer ones were played out and abandoned beside the trail. One of the principal reasons for this was that the big fellow required a large amount of grass and it took him all night to get it; *he got no rest.* while the little fellows filled their little skins in a couple of hours and *rested the remainder of the night* and were ready for business in the morning. It may easily be said that we have no longer a frontier, and that campaigns upon short grass are things of the past. I saw my troop during the Civil War for a week without a particle of hay, and only ten pounds of cold corn per day. All of my blood-like horses looked like magnified greyhounds, the closer, coarser animals were in much better condition. In a letter to that good horseman, General Aleshire, Quartermaster General of the army, written several years ago, I wrote: "My ideal cavalry horse has always been the Morgan. There was a troop in the volunteer regiment in which I served during the Civil War, mounted principally on Morgans. In my own troop, mounted on all kinds of stuff, there was not a horse left after the Gettysburg campaign, in 1863. Quite a number, I do not know just how many, of the

Morgan troop, survived the gruelling campaigns of the Cavalry Corps, Army of the Potomac and Shenandoah (Sheridan's) and were purchased and taken home, good, sound animals. One of those ridden by Captain Hammond, afterwards General Hammond, was used by him when a member of Congress in Washington. In one of his letters to me he wrote: 'I am still riding Pinkie, now thirty-three years old, the finest saddle horse in Washington.' " The Morgan horse goes back to enough good blood to give him all the courage he needs, and he has been used for sober uses so long that the craze of racing has been, to a great extent, eliminated. A good sized (15 hands) Morgan is large enough to carry the authorized 165 pounds man. The forage allowance, when he gets it, is abundant, and when he has to forage for his living, he soon fills his little stomach and is at rest. While not rough coated, his skin is thick, and his hair is almost a fur in cold weather.

The thoroughbred jumper is not a cavalry horse. What is needed for a cavalry officer is a 16½ horse weighing 1,275 pounds. My thoroughbred won in "green hunters" at Portland, Ore., but if I were again young, heading a cavalry troop, I should value his jumping no higher than that of the poorest jumper in my troop. *The officer cannot lead where his men are unable to follow.* I do not wish to make light of jumping, or of cross-country riding, for I believe nothing will develop fearless riding as well as fox-hunting and kindred sports, and I believe this view is being held very strongly in the army by practical men.



THREE VALUABLE BOOKS.

ONE of the greatest debts the army owes directly to the Service Schools at Fort Leavenworth is not generally recognized, or rather is not generally appreciated and accredited. It is their influence for the production of valuable professional books in the original, and of translations of valuable foreign works.

When the "*Kindergarten*" was first started at Fort Leavenworth—and it was not so long ago—no professional text-books of American authorship were available for its curriculum; and so low was the state of professional culture in the service that there was no person well enough acquainted with foreign military literature even to suggest text-books from that source. So the "*Kindergarten*" groped and stumbled along in the dark for several years, trying one English text or translation after another; until at last WAGNER and CARTER and BEACH and ROOT, all instructors at the school, came forth with their books, which are among the household gods of every officer in the army today.

From that beginning the work has gone on, every year seeing useful new books or translations issued under the auspices of the schools there, or by reason of their influence. A list of such books lies before me, but it is too long even to copy here. The last two years, however, have given us three works, which, without comparison with those that have gone before, are, it seems to me, of special interest and value to the service. They have already, and months ago, been favorably reviewed in the columns of the CAVALRY JOURNAL, and the few words of praise here to be set down are not offered even as new testimony, but merely as cumulative evidence.

Taking them in chronological order Captain HANNA's "*Tactical Principles and Problems*" comes first. The author begins his preface with the modest statement, "This book has been written in the hope that it may help junior officers of the regular service and militia who are beginning the study of tactics. The word "junior" as applied to officers is an indefinite adjective, and it is hard to say when an officer ceases to be "junior" and becomes "senior;" but I believe this volume may be studied with advantage by most officers, though they may already have begun the study of tactics; provided their rank does not carry them beyond the realm of minor tactics.

With his twenty-six problems and their clear, sensible so utions, the author leads one through the principles of minor tactics by a path so smooth and easy of grade as never to tire one on the way. I do not know any other book in our language which makes the study of tactics so easy and agreeable, and that it is appreciated by students of tactics in both the regular army and the militia is witnessed by the fact that it is already in its third edition.

The next volume I have in mind is Captain GRAY's "*Cavalry Tactics as Illustrated by the War of the Rebellion.*" This book is altogether unique in its purpose and arrangement, and withal it is so interesting and instructive that the only complaint it leaves the reader to make is of its brevity. And yet the writer has, by a multitude of actual examples gleaned from official reports, illustrated nearly every principle of cavalry, and shown that American cavalry has proved itself equal to any achievement from riding over breastworks manned by

infantry, or capturing gunboats, to the charge in which horse flesh and cold steel clashed together. And the book is provided with so excellent an index that any one desiring to find examples of a particular kind of action can easily do so; and he can also find the volumes and the pages of the records they are taken from.

The book is an inspiration to every American cavalryman; it is a brief with convincing evidence of our claim that all the best lessons of modern cavalry work can be found in the records of our own great war. This is a truth with which the best cavalrymen of Europe are tardily becoming acquainted. General von Bernhardi says, "The most interesting and instructive campaign for the service of modern cavalry appears to be the American War of Secession, which is, however, almost unknown in Germany where there is lack of opportunities to study it;" and later he enjoins cavalry leaders to act "in the spirit of a Seydlitz or a Stuart." What higher praise could the finest German cavalryman of today bestow upon an American cavalry leader, type of his class, than to place him in the same niche with Seydlitz?

General von Bernhardi should see to it that Captain Gray's little book is translated into German and made available to his officers without delay, for there is no other volume in which they can find a tenth of the cavalry lessons of our war that are presented in its small compass. Every American cavalryman who reads a single page of the book will read to the end, and in his heart will thank Captain Gray for the labor he has done, and congratulate him upon the excellence of his achievement.

The third book I have in mind is Lieutenant Krueger's translation of Colonel Balck's "*Tactics of Infantry.*" This is the second translation from the German for which the service is indebted to Lieutenant Krueger, and like the first, it makes one regret less poignantly that one is unable to read German military literature in the original; for not only have we here a translation made by an expert in the German language, one who understands all the fine shades of meaning that escapes the ordinary Englishman or American who has labored for a knowledge of German, but we have a book from the pen of an

expert writer of English as well. This is a rare union to find in an English translation of a German military work. Too often such translations are rendered in English so clumsy that the pleasure the reader gets out of their substance is marred by their form.

No such fault can be found with Lieutenant Krueger's translation. There is nothing literal about it; it is an English composition, not a German structure of English words.

Of the substance of the great work it is hardly necessary to speak. It is the last word on infantry tactics. Its teachings have already been drawn upon by progressive students of tactics in our army, and its influence is plainly to be seen in almost every page of the new *Infantry Drill Regulations*—far and away the best drill book that has ever been written for any arm of our service.

The Cavalry Association has placed us under lasting obligations by putting before us the excellent works of Captain Gray and Lieutenant Krueger.

M. F. STEELE.

THE ADVANCED RETROGRESSION OF OUR CAVALRY.

DURING the past year so many articles have appeared both in service and other papers showing that in organization and equipment our cavalry is of an antiquated pattern that some answer should be made. Every now and then a man comes out with a suggestion for the improvement of our Cavalry Drill Regulations which is actually an improvement but this too has been carried to extremes.

We are said to be behind European nations in the organization of our cavalry. As to the equipment I shall say nothing. The Cavalry Equipment Board is answering that now. As regards the organization however, there is much to be said. For ten years now we have copied, if not blindly at least myopically, everything that appealed to any officer of rank sufficient to

have his voice heard and his opinion considered on his return from abroad. We have adopted hats, caps, ornaments, coats and equipments as blindly as ever Patroclus adopted the arms of Achilles but we neglected to observe that, as Colonel Maude observes: "Blind copying of equipment does not always cary with it the spirit that animated the original wearer."

European cavalry has been studied as a model on the assumption that it alone is perfect and the statement is now made in cold type and by men who ought to know better, that our own cavalry, failing to measure up (or down) to this standard, is defective and behind the times.

Suppose it could be shown that, instead of our cavalry being behind the times, European cavalry has not advanced one inch from the days when Napoleon undertook his Italian campaign? Suppose it could be shown that while the European nations have developed their infantry and artillery tactics, they have been content to allow their cavalry to remain as stationary as the Rock of Ages? Would any one be convinced? I think not. "They have Moses and the prophets, * * * If they hear not Moses and the prophets neither will they be persuaded though one rose from the dead."

If those who advocate the adoption of a two rank formation for cavalry as being progressive and up-to-date are really anxious to get the very best drill regulations of that kind that are extant they will find in all probability in the library of the State Historical Association in Pennsylvania a copy of a little book that will give it to them, with all the original German mold still adhering to its covers, from the sketches of the pigtailed troopers to the opinions of Chevalier Folard and General De Grandmaison, anent the proper arming of the troops.

I have a copy of it by me as I write and, at the risk of being tedious, I shall copy a few of its progressive pages. It is not often that it is given to a man to literally founder himself on up-to-date ideas a hundred years old in the wood.

The book is entitled: "A Treatise on the Military Art;" in four parts, containing: I. A comprehensive system of discipline for the cavalry of the United States, adapted to the principles of Baron Steuben's regulations for the infantry and the latest Prussian and English treatises on cavalry.

II. Regulations concerning the duty of cavalry in camp in time of war.

III. Directions for the conduct of Partizan corps whether cavalry or infantry in carrying on the Petite Guerre.

IV. Maxims relating to the marching, encamping and other general operations of an army in the field, compiled principally from the observations of experienced officers and the most approved writer on the art of war.

The title page shows that the book was by E. Hoyt, an officer in the cavalry of Massachusetts and was printed at Brattleborough for the author in 1798. The title page also shows the following quotation: "The strength of the state consists less in the number than the military virtues of its citizens."—*Vattel.*

In the preface to the book, the author says that "the preparation of this work has been considerably delayed in the hope that some abler hand would undertake the necessary task."

The author seems to have been one of those unfortunates who did not guess his own greatness. He was literally more than a hundred years ahead of his times but even his dim prophetic eye could not penetrate the veil of the future far enough to see the old time cavalry drill regulations of Frederick the Great, which were brought to this country by Baron Steuben, and which had been blindly copied by the up-to-date European nations (who by the way were invariably chased home by the unprogressive Napoleon) revamped and foisted upon the American cavalry of today.

In this new-old book by me, it is laid down: (See Chapter IV.)

"A troop is to consist of one captain, two lieutenants, one cornet, four sergeants, four corporals, one smith, one saddler, one farrier, one trumpeter and forty-six dragoons; to be formed into two ranks at the distance of a horse's length, the tallest men and horses in the front rank. A troop thus drawn up is to be divided into three sub-divisions, the captain to take post on the right of the first sub-division covered by the fourth sergeant; the first lieutenant on the right of the third sub-division covered by the first corporal, the second lieutenant on the right of the second sub-division covered by the second corporal,

the cornet twice the length of a horse behind the center of the troop; the first sergeant a horse's length behind the center of the first sub-division; the second sergeant the same distance behind the center of the third sub-division, the third sergeant the same distance behind the center of the second sub-division: The two remaining corporals are posted on the flanks of the front rank.

"When a troop is drawn up with *open files*, the horses are to be so far from each other as to admit a horse to pass between the files; but when drawn up at *close files* they are lightly to touch each other with their knees.

"The smith, saddler and farrier are to be exempted from detail as privates and from appearing in the ranks when their particular professions call them to their several departments. But when they are not employed in their professions, they may be paraded in the ranks to supply the places of such men as may be absent.

"A troop drawn up according to this arrangement will consist of twenty-four files, exclusive of the officer's files and each sub-division will contain eight files which makes a very convenient number for almost any movement required in the maneuvering of a squadron. This arrangement is adapted to the second method of drawing up a regiment as described in the next chapter and the troop will constitute one division of a squadron. But when a troop is drawn up to take its place in a regiment formed as described in the first method (same chapter) it is divided into two sub-divisions with the captain on the right of the first and the first lieutenant on the right of the second each covered by a sergeant, the other two officers taking post in the rear as supernumeraries; the two remaining sergeants in rear of the sub-divisions and the corporals divided equally to the flanks.

"In this last method forty-four dragoons, with the four corporals, will be sufficient to constitute a troop of twenty-four files and each sub-division will consist of twelve files exclusive of the officer's files."

That is identically the formation of the tentative troop in two ranks that we have been experimenting with except that the author knew what he was about; had his extra men

definitely placed and had clear cut ideas on the subject. That is the advantage of being progressive. A progressive man arrives at his goal while the unprogressive man is scratching for a start. The double column of fours or rather the column of eights of the tentative drill regulations is the column of subdivisions of Frederick the Great.

In the formation of the regiment we are still behind the European nations for we have the twelve troop, three squadron regiment that no thinking person would use. It is in single rank which has only a dozen advantages over any other and it is *not* formed in the following manner:

"A regiment to consist of eight troops with the following field and staff officers, viz., one colonel, two majors, one adjutant, one quartermaster, one paymaster, one surgeon and a surgeon's mate, one sergeant major, one quartermaster sergeant and one riding master.

The troops to be drawn up in two ranks and posted in the following order from right to left: First squadron—first, sixth, fourth and eighth. Second squadron— third, seventh, fifth and second.

"The regiment is to be divided into two squadrons with an interval of twenty yards between them and one color posted in the center of each squadron, the first major takes post fifteen yards before the centre of the first and the second major, fifteen yards before the center of the second squadron, the adjutant eight yards in front of the regiment before the center of the interval; the sergeant major, quartermaster sergeant and riding master, fifteen yards behind the interval of the squadrons. The colonel's post is not stationary except at reviews at which time he posts himself ten yards in front of the line of majors before the center of the regiment; the trumpeters are equally divided to the wings of the squadrons, the trumpet major on the left of the first squadron.

"Each squadron is to be divided into four divisions and eight sub-divisions. The captains are to remain on the right of their troops except the second who takes post on the *left of his* troop which is the left of the regiment, the first lieutenant of each troop to be posted on the right of the second sub-division of their several troops except the first lieutenant of the

second troop who is posted on the right of the first sub-division of that troop; its second lieutenant is on the right of its second sub-division; the remaining officers and sergeants are posted as in plate one which represents a regiment formed as described in the first method."

At the risk of boring the reader I have copied verbatim. Unfortunately my typewriter is not sufficiently progressive as to include the long s's which are really essential to give the proper flavor to the extracts above given.

We have worked over the proposed scheme—some of us. We have studied the new regulations and those who are antiquarians have provided a certain amount of pleasure from the perusal but when it comes to being asked to seriously consider the new scheme an advance, we hesitate.

European nations have it, it may be for the same reason that they have morganatic marriages, and other off-shoots of the feudal system which was the same reason that led Sinbad to entertain the Old Man of the Sea—He could not get rid of him.

What our real regulations were I do not know. Presumably the official copies went up in smoke when General Ross burned Washington in the war of 1812.

GEO. B. RODNEY,
Captain Fifth Cavalry.

FORAGE.

IN the CAVALRY JOURNAL for January, 1912, an excellent article on forage by Veterinarian Griffin, gives us much interesting information on the different foods that can be and are used in feeding our animals, but I noticed that he does not mention much about the class of hay that are fed in Arizona and California and other southwestern States and in Honolulu, viz: Oat hay, barley hay and wheat hay. In fact, some years ago, these hays were the only kind that people in those sections knew anything about, for when I went to Fort Huachucha, in

1903, the feed there was whole grain barley or corn and a mixture of barley and oat and wheat hays, but people were gaining more knowledge of farming and alfalfa and other crops were being sown, so that soon we were able to get oats and oat hay or wheat hay and dispensed entirley with the barleys.

As there was very little, if any, herding at Huachucha, we found that this dry feed produced constipation in our animals; consequently, to relieve this condition, we bought baled alfalfa hay and fed it in conjunction with oat or wheat hay about twice a week. This method relieved the trouble and had most excellent results, proving an ideal feed and one that I strongly recommend for use wherever these dry hays are fed. The proportion of alfalfa to oat or wheat hay being one-third.

In Honolulu we feed wheat hay principally, but get some oat hay. These hays are naturally very dry and dusty, being grown in California, and we have counteracted their constipating action by contracting for a supply of green forage that is grown on these islands, but I believe the baled alfalfa hay fed two or three times a week would do just as well. These oat and wheat hays are cut while their grains are in the dough and if properly planted, cut and cured, seem to form a fair substitute for good hay, but as a rule they are very dusty and brittle, so brittle that one dare not shake the hay to get rid of the dust for so doing, one would be apt to have principally dust left. Eventually, increased farming knowledge will enable people to grow proper hays in the place of these grain hays.

No doubt when Veterinarian Griffin gave this lecture at Leavenworth, he had learnt all there was of alfalfa as his remarks on it show and I believe that, on its first introduction to the States this great hay was very much underated and very little understood. I, as an ardent admirer of its excellent qualities, would like to change Veterinarian Griffin's poor estimation of alfalfa and differ from him in regard to its extensive use producing constipation in horses, for I have seen it fed in almost every imaginable way and very rarely has it produced that effect. If alfalfa of a fourth or fifth crop was not cut till some time after it had flowered, it might produce impaction, on account of the large proportion of fibrous matter in it, but most hays will do that. On the contrary alfalfa if fed exten-

sively, does not produce constipation; if anything it causes a too laxative condition of the bowels. Though I have seen animals that did good work for months on alfalfa with a generous ration of barley or oats.

As a grazing plant it is dangerous on account of its liability to bloat animals, especially cattle, but this is caused as a rule by the animals being turned out when the dew is still on the grass, making it cold and wet, thus chilling the stomach and internal parts, checking digestion and producing fermentation.

In California seven crops of alfalfa have been cut in one year to my knowledge. Out here in Honolulu, on the farm of Mr. Paul Isenberg, they cut thirteen crops of alfalfa in one year, a truly wonderful yield. If alfalfa could be cured and baled on this island, it would pay the government to do it as the military reservation here is well adapted for raising crops, having thousands of acres of good rich land and plenty of water for irrigation purposes.

All our Veterinary Hospitals should have at least two or three acres around them where veterinarians could raise green food, preferably alfalfa, for their sick animals and have some corrals for convalescing stock. This green food is especially valuable as a medicine for sick animals and personally I have no doubt that I have saved quite a number of public animals by being able to feed them nice fresh green alfalfa during their illnesses.

In winter good baled alfalfa if soaked or steamed and fed to sick animals is nearly as good as fresh fodder. I sincerely hope that this most excellent feed will be more used in our army than it is at present. I am satisfied that if veterinarians once used alfalfa and reported on its qualities, their reports would be favorable; at least we all would gain in knowledge of forage and therefore I respectfully urge that the matter be taken up by those who can add to it.

R. VANS AGNEW,
Veterinarian Fifth Cavalry.

EXTRACTS FROM A LETTER FROM AN OFFICER AT SAUMUR.

* * * And the secret of the progress that I have made * * * has been the suppling exercises that I have taken. You must not think that it is too greatly a matter of understanding. Of course one must be told a lot at first—and all the time—but it won't be long until you discover that your understanding has far out-stripped your performance. You know what to do under a given set of circumstances, for hasn't the instructor told you a million times, and haven't you observed your comrades doing the same thing and failing as you have failed, day after day? But why? Because you have not prepared your body in the way of supplings and gymnastics so that it will obey your will. You are told to loosen up, to relax, and you can't. A certain old jumper runs away with you, or pulls your arm off, and the instructor yells at you until you are sick and tired of it. You say that no one can release the reins on that horse—the old fool will run away. And so he will—with you. But the next day you note with surprise and a little chagrin that another man rides him and releases the reins; the horse doesn't pull, but just canters along perfectly contented. Now why? Because one man is supple in the small of the back, and the other is not. The one sits snugly and relaxes from the waist up. The other sits tightly, with a desperation that is known by, and disturbing to the mind of the horse; and from the waist up is stiff—every muscle as taut as a wet guy rope, and so is pounding his horse's back; and the concussion, and the stiffness, and the lack of balance, makes the hands play havoc with the horse's mouth. And so the horse is a puller, and possibly will run away. * * * What shall you do? Take setting up exercises in your room before dressing in the morning. Take them three times a day, if you have the perseverance, of which quality it requires a lot. Do the trunk exercises of the drill regulations chiefly, and some—not much—of the others. And that exercise of lying down on the

floor and raising the legs, and hooking the toes under something and raising the body. Concentrate your mind on your waist, the small of your back, and the belly. Don't do too much. Not over ten or at the most, fifteen minutes at a time. Be happy about it, and don't expect plain and palpable results until the end of say, three months. Don't overdo it and don't be too eager, and you will bring about a marvelous change in your physical efficiency. * * *

This is all dismounted work, now I am going to tell you what to do mounted. Ride a little now and then without stirrups. Take hold of the pommel of your saddle and pull yourself forward and deep into the middle of it. Lower your knees and carry your feet to the rear until you can't see your toes. "Go limber" in the back, loosen up and let your body incline probably a little to the rear of the vertical. If your horse seems unusually rough at the slow trot, relax the back and carry the weight a little to the rear. If your horse, besides being rough, is also playing up and pulling it is because you are stiff in the back through contraction of the muscles and leaning to the front, so that he receives a jolt as well as you and doesn't like it. If you relax and lean back, and get into a balance with him, he will probably relax the jaw, lower the head, and go smoothly, and you will have the pleasant sensation of getting in accord with him.

Now notice that in each case what I have told you refers to your back—both mounted and dismounted. If you will do this —just a little every day—it will help a lot. * * * It is these very supplings of the body, the gentle flexings of the back, legs and shoulders that give the Frenchman his superiority on horseback. He has it naturally—as a race—more than we have, and in addition he cultivates it. While we have it in a lesser degree and do not consider it of enough importance seriously to cultivate it. Why do our horses run away with us, bolt their jumps, etc? Because we are stiff and contracted, our hands are hard, and the horse receives shocks on his spine from our straight backs, and dreads the effect of the bit in his mouth. We hold him desperately, and the girls think we are very brave and a bit foolish for riding such a horse! The Frenchman comes along and avoids many of the causes which produce the bad

effects, and so it is not put to the necessity of holding his horse—the horse is contented. You can talk and theorize until doomsday, but you won't be able to do it until you gain easy, quiet, and sure control of your physical powers. * * *

MILITARY RACES AND HORSE SHOWS IN FRANCE.

THE official Bulletin, No. 7, of March 4, 1912, contains the latest order on the subject of military horse races, steeple chases and horse shows. It gives the conditions to be fulfilled by officers, non-commissioned officers and horses for the different events and the control to be exercised by colonels of regiments.

For any horse belonging to the government to take part, the authority of the colonel must be obtained. No thoroughbred can run till he is six years old and no half-bred till he is seven. They must have been inscribed in the horse book for at least six months before the race and must have been trained solely by officers or non-commissioned officers of the active list, exclusive of any assistance whatever from persons not in the army.

No prize in money can be run for by an officer, non-commissioned officer or horse belonging to the government. The regulation uniform is obligatory.

The contests for army horses, officers and non-commissioned officers are divided into three categories: 1. Military races in Algeria—officers' class and non-commissioned officers' class. 2. Military Steeple chases—non-commissioned officers' class and three classes for officers. 3. Military cross country—three classes for officers and two classes for non-commissioned officers.

The conditions for each class are given in the order.

T. B. M.

RIDING IN THE ITALIAN ARMY.

I HAVE the honor to invite attention to an article in the February number of the "*Revue de Cavelerie*" entitled "À propos de l'Equitation Italienne." This is a partial translation into French of an article which appeared recently in the Italian magazine "*Preparazione*," from the pen of one of the most undisputed authorities on equitation in the whole Italian army, Gen. Zaremba de Jaraczewski. In this paper the General gives much praise to the zeal, enthusiasm and gallantry of Italian horsemen, but he points out, with an easy mastery to the subject not often met with, the narrow limitations of their favorite seat.

Speaking of the success gained by Italian cavalry officers at many horse shows, jumping contests and sporting events, he says: "It is incontestable that in this field our officers have nothing to acquire from foreign services. On the contrary, these seek to imitate us, as I have already remarked before; but do they ever take us as their model in what concerns *military horsemanship*? There is no doubt in my mind that our stye of equitation is more sporting than military. Let us praise as much as we like our brilliant successes at horse shows, at races and in the hunting field, but remember that all these most agreeable sports ought to be the means of making not only hard riders, but passionate lovers of the horse and of equitation in all its forms."

The general then goes on with an interesting technical criticism of the Italian officers' seat and of his method of training the young horse, and above all of placing his head. "The rider should be supple and ready to aid the movements of the horse, but this can only be done by having the thighs sloping to the front and not, as we see them today (in the Italian army) almost parallel to the ground, with the knees clear out of the saddle and the legs cocked up on the stirrups. * * * A combination of all the aids should be always at the rider's disposal, hands, legs and his own weight. Without this a man may be perhaps a fine sportsman or excellent jockey, an intrepid cow-

boy, a remarkable jumper, but not a mounted fighting man, absolute master of his horse, even when saber in hand—that is discharged of all thought of his horse and free to occupy himself with the enemy, or lead the men under his command."

These criticisms from an Italian cavalry officer of the highest distinction and recognized competence in horsemanship, are especially worth the attention of those who are now directing our own education in horsemanship; for if any doubt still exists in their minds as to the value of Italian methods as compared with French methods of training horses and horsemen, this paper should go a long way toward dissipating it.

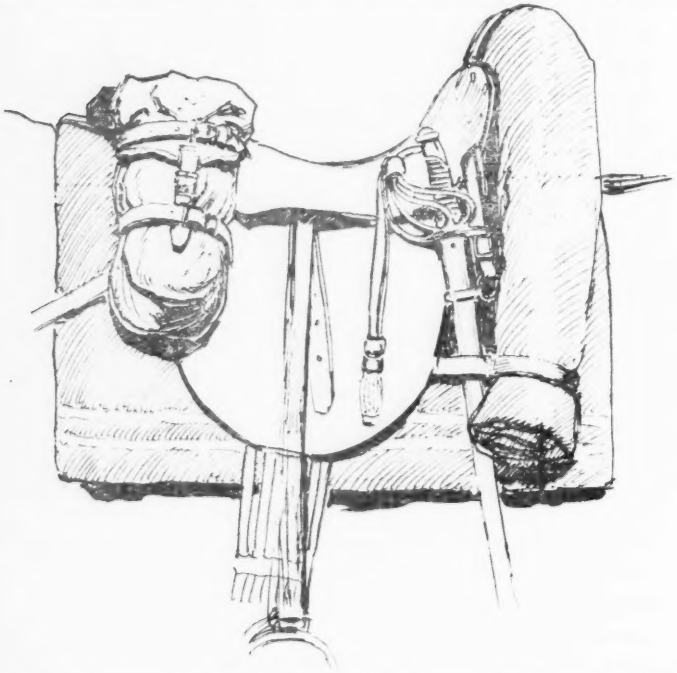
Our army during the last ten years has, with very slight exception, drawn all its inspiration in horsemanship from the French; the two officers we have sent to Hanover may be considered an experiment from which an exact comparison can be established between the German and French methods. If anything superior exists in the former, these men can readily present it in its most favorable aspect to the Mounted Service School, and if approved it can be grafted upon our own adaptation of the French system. But it would seem that the time for the smallest hesitation in choosing our course has passed. We have now at least ten Saumur graduates; three more officers will go to the French school next year. We have taken our line, let us ride it straight. No year goes by, no international event takes place, which does not bring fresh evidence that we have chosen wisely. To send at this time a single officer to Italy, Germany, Austria or England for a course in horsemanship, seems a distinct waste of that officer's time, so long as the French will accept him at Saumur.

T. B. M.

THE FRENCH CAVALRY SADDLE—PACKED.

HEREWITH is an accurate sketch showing the way the French cavalry saddle is packed and the saber held.

The cantle roll is frequently longer, as I recollect it, than is shown in the sketch, but in no way changes the principle of the attachment. You will notice that the strap which supports



the saber passes through a slit in the frame of the seat and is not slung as with us from a ring or staple on the side bar. This brings the saber hilt farther away from the horse's side than would be the case if the supporting strap hung from the side-bar. When the man is mounted, the hilt rubs against his left thigh, and in the field many soldiers wrap the brass hilt with a piece of cloth to keep it from soiling the red breeches.

The saber is steadied in its position by being passed through a loop which is made in the strap attaching the cantle pack to

the girth. The scabbard passes not merely under this strap, but through a loop made in it. This strap has a buckle for cinching it tight around the cantle roll, and for securing the roll as snugly as may be desired to the horse's side. The sketch shows the arrangement of this strap.

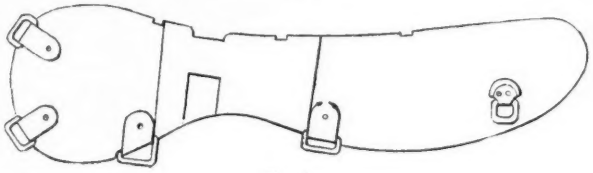


Fig. 1.

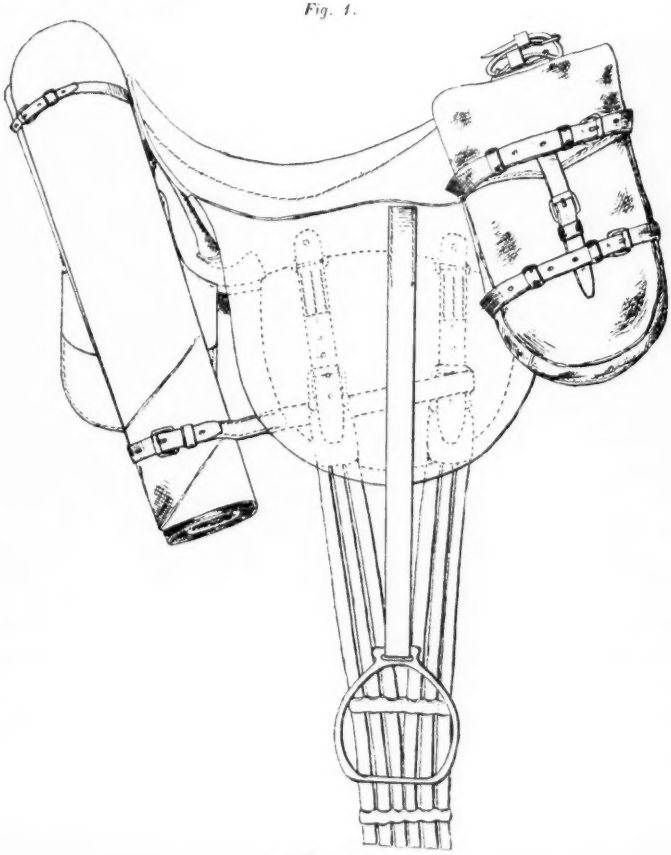


Fig. 2.

OFFICER'S DRESS.

THE following extract from the *Broad Arrow* expresses our ideas exactly as to the question of uniforms for our officers, especially as regards the special full dress and leggings. The former is expensive and gaudy to the exterme and the latter is not only uncomfortable for wearing day in and day out but also, it is believed to be injurious to the wearer when worn continually.

"I think all officers will welcome the departure of the military frock coat, and now that the question of officers' uniform is once more being discussed, the following changes would be popular with a large majority of officers:

"(1) Do away with mess kit altogether, it being an expensive and uncomfortable dress, and officers to dine in civilian 'evening clothes.' This would be one less article of dress to cart about; of course any officer 'on duty' would wear the blue serge jacket for dinner.

"(2) Frock coat already discussed.

"(3) Remodel the 'Service Dress' and do away with puttees, which (*a*) are most uncomfortable, especially when maneuvering in hilly country, and (*b*) take a long time to put on and take off. Puttees possess not a single advantage, and I have never heard an officer speak in favor of them; in fact I heard a field officer once say 'that the chief advantage of being promoted to 'field rank' was not having to wear puttees.' When marching one tires much sooner when wearing puttees, and when on duties which do not involve taking exercise they prevent the full circulation of the blood, and 'cold feet' are the consequence. As a substitute for puttees, I would advocate 'woollen stockings' turned over below the knee. Do people like postmen, who have to walk long distances wear puttees? Do runners or footballers wear them? No one ever wears puttees unless compelled to do so. This small reform has the advantage of adding no extra cost to the much underpaid regimental officer. As regards the 'Service dress' jacket, have this made with a low, turned down collar (like a Norfolk jacket), and under this, a khaki *soft* collar and tie to be worn.

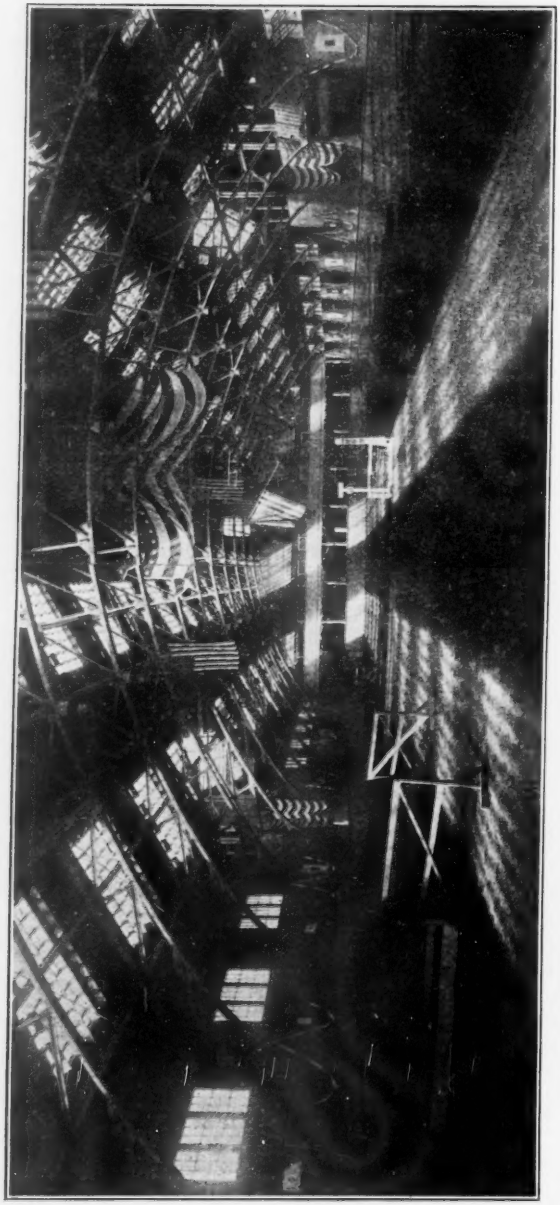
"(4) The officer's kit would then consist of: (*a*) Full Dress, for ceremonials and court-martials; (*b*) Service Dress, as described above, for all other parades; (*c*) Blue Patrol jacket for barrack duties and mess when on duty; (*d*) ordinary mufti evening dress for those not on duty."

FORT LEAVENWORTH HORSE SHOW.

THE Fourth Annual Horse Show, given under the auspices of the Fort Leavenworth Field Club, was held on Saturday, April 13, 1912, and was a great success, not only on account of the number and character of the entries, but as a social event as well. The three galleries of the riding hall of the Army Service Schools were crowded with officers, their families, and visiting friends as well as by enlisted men, their families and friends, for whom one of the galleries was reserved.

A FEW OF THE ENTRIES IN THE LADIES PARADE CLASS.

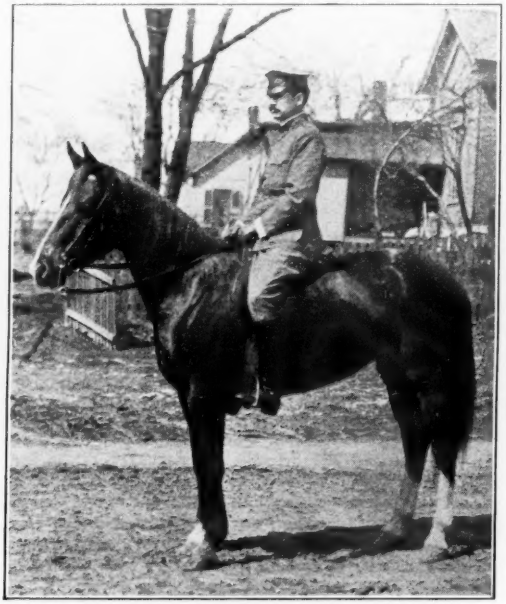
From left to right: Mrs. T. H. HORN, Mrs. R. VAN HORN, Mrs. WM. KELLY Mrs. A. G. LOTT, Mrs. A. U. FAULKNER, Miss ELEANOR LEINHAN, Mrs. JAMES FECHET.



RIDING HALL—ARMY SERVICE SCHOOLS.
(As decorated for the Fourth Annual Horse Show.)

The officers of the field club which has charge of all athletic sports—polo, golf, tennis, etc., for the officers of the garrison and schools, are as follows: *President*—Lieut. Colonel T. H. SLAVENS; *Secretary*—Captain H. B. FISKE; *Directors*—Captain F. L. MUNSON, Captain J. D. TAYLOR, and Lieutenant EBEN SWIFT, Jr.

The Committee on Arrangements for the Horse Show were: Major M. J. LEINHAN, Major W. N. BISPHAN, Captain



BECKY SHARP.

Winner of the second prize in the Light Weight Charger Class and of the second prize in the Class for the Best Trained Mount.

Owned by Captain H. R. RICHMOND, 10th Cavalry, Captain H. S. HAWKINS, 4th Cavalry, up.

PERCY L. JONES, Captain LE R. ELTINGE, First Lieutenant EBEN SWIFT, Jr., and Veterinarian G. E. GRIFFIN.

The judges for the show were all from a distance and were: Major W. S. GUINARD, First Lieutenant GEORGE M. LEE and Dr. ST. CLAIR STREETT, the well known horseman and polo expert of Kansas City, Mo.

There were eleven events all of which were so arranged and pulled off by the committee in charge that there was not a hitch from start to finish. Two of these events, the first and fifth, were in the nature of exhibitions to show the training of the horses entered and for which there were no prizes offered or ribbons awarded.

The following is a resumé of the different classes, the conditions for each and the winners in the several classes:

MOLLIE STARK

Winner of the first prize in the Ladies Astride Class. Ridden by Miss BESSIE GRIFFIN.

Owned by Veterinarian G. E. GRIFFIN, 3d Field Artillery.

Class I. Ladies Parade. Fifteen entries. No awards.

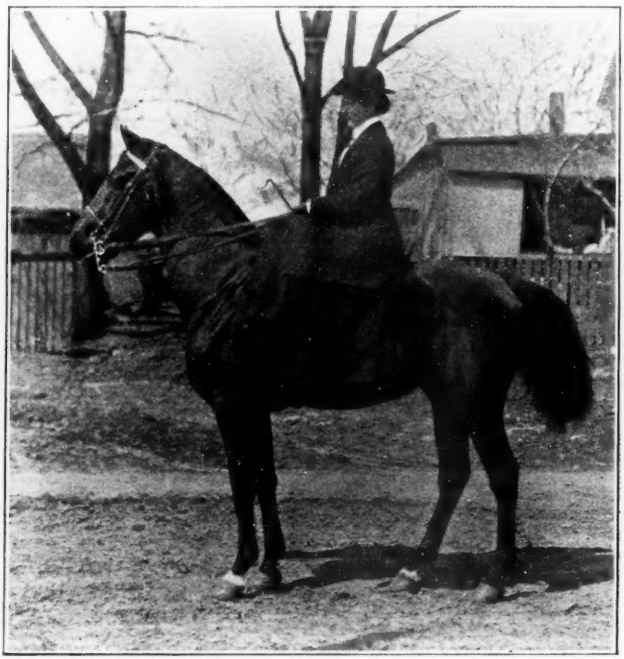
Class II. Officers' Light Weight Chargers. Eighteen entries.

Conditions: Each entry must be the property of an officer and must conform to army specifications. Any saddle may be

used. Conformation to score 50 points, manners 25 points and action 25 points. Required: Walk, trot and gallop.

Prizes: Silver cup and ribbons.

Winners: 1. Lieutenant T. H. Emerson's "Peter Pan;" 2. Captain H. S. Hawkins' "Becky Sharp;" 3. Major W. N. Bispham's "Billy B;" 4. Lieutenant D. L. Roscoe's "Benkara."



MONT EGAL.

Saddle bred stallion, owned by Major T. N. Horn, 4th Field Artillery, Mrs. T. N. Horn, up

Winner of the second prize in the Ladies Side Saddle Class. Ridden by Mrs. T. N. Horn.

Class III: Polo ponies. Eight entries.

Conditions: Running the wands 25; manners of pony 25; control, which includes halting directly from the gallop, turning, riding the figure 8, and hitting the ball, all at the gallop, 50.

Winners: 1. Captain G. S. Gibbs' "Tommy Atkins;" 2. Lieutenant Swift's "Highball;" 3. Lieutenant Swift's "Waterwagon;" 4. Lieutenant Pike's "Eddie Foy."

Class IV. Ladies riding Astride. Ten entries.

Any horse or pony. Required: Walk, trot and gallop. Equipment 25, management 50, general appearance 25.

Winners: 1. Miss Bessie Griffin; 2. Miss Elizabeth Hanson; 3. Mrs. W. G. Sills; 4. Mrs. Percy L. Jones.

DIXIE.

Winner of the first prize in the Class for Best Trained Mounts and the third prize in the Officers Jumping Class.
Owned by Lieut. EBEN SWIFT, 11th Cavalry.

Class V. Exhibition Ride by Officers. Fourteen entries. No awards.

Class VI. Ladies Riding Side Saddle. Five entries.

Any horse or pony. Equipment 25, management 50, general appearance 25.

Winners: 1. Mrs. G. V. Strong; 2. Mrs. T. N. Horn; 3. Mrs. W. Kelly; 4. Mrs. R. Van Horn.

Class VII. Best trained mount. (Owned by an Officer.) Fourteen entries.

Required: Walk, trot, gallop, two-track, reining back, haunches in, right and left leads, changing leads on figure 8 and jumping an obstacle three feet six inches in height.

Prizes: A silver cup and ribbons.

Winners: Lieutenant Eben Swift's "Dixie;" 2. Captain H. S. Hawkin's "Becky Sharp;" 3. Captain H. S. Hawkins'

CÆSAR.

Major T. N. HORN, 4th Field Artillery, (owner), up.
Winner of the Ladies Jumping Class, (4 ft. 6 in.), ridden by Mrs. T. N. HORN.
Winner of the Officers High Jump (5 ft. 4 in.), ridden by Captain L. R. BALL, 6th Cavalry.

"Robbin Lightfoot;" 4. Captain W. G. Sills' "Joseph Kronberg."

Class VIII. Ladies Jumping. Seven entries.

Winners: 1. Mrs. T. N. Horn; 2. Mrs. G. V. Strong; 3. Mrs. G. V. Strong; 4. Miss E. Hanson.

Class IX. Officers'Heavy Weight Chargers. Nine entries.

Each entry must be the property of an officer. Any saddle may be used.

Requirements: Walk, trot and gallop. Conformation 50, manners 25, action 25.

Prizes: A silver cup and ribbons.

Winners: 1. Lieutenant Eben Swift's "Forestall;" 2. Major T. N. Horn on Captain Greer's "Aurora;" 3. Lieu-

FORESTALL.

Thoroughbred gelding, owned by Lieut. EBEN SWIFT, 11th Cavalry. Winner of the first prize in the Officers Heavy Weight Charger Class.
Sired by Watercress, out of Vernette.

tenant R. E. Beebe on Captain Haskell's "Kim;" 4. Captain J. E. Fechet's "Rattler."

Class X. Officers' Jumping. Twenty-seven entries.

Requirements: Entry must be the property of an officer or of the United States.

Obstacles: Board fence three feet and six inches high; post and rail, three feet and six inches high; bar, three feet and

six inches high; in and out jump, to consist two three-feet hedges, thirty feet apart.

Winners: 1. Major T. N. Horn on Captain Greer's "Aurora;" 2. Lieutenant G. V. Strong on Army Service School's "Lucy Lee." 4. Lieutenant P. J. Hennessey's "Duke of York."

Class XI. Officers' High Jump. Nine entries.

Requirements: Must be the property of an officer or of the United States.

Conditions: Jumping to start at four feet, the height will

CÆSAR IN ACTION.
Captain L. R. BALL, 6th Cavalry, up.

then be increased to four feet and six inches. From this height four inches at a time will be added until contest is decided, unless in the opinion of the judges such an elevation would be considered dangerous. Only three jumps will be allowed each horse at the different heights.

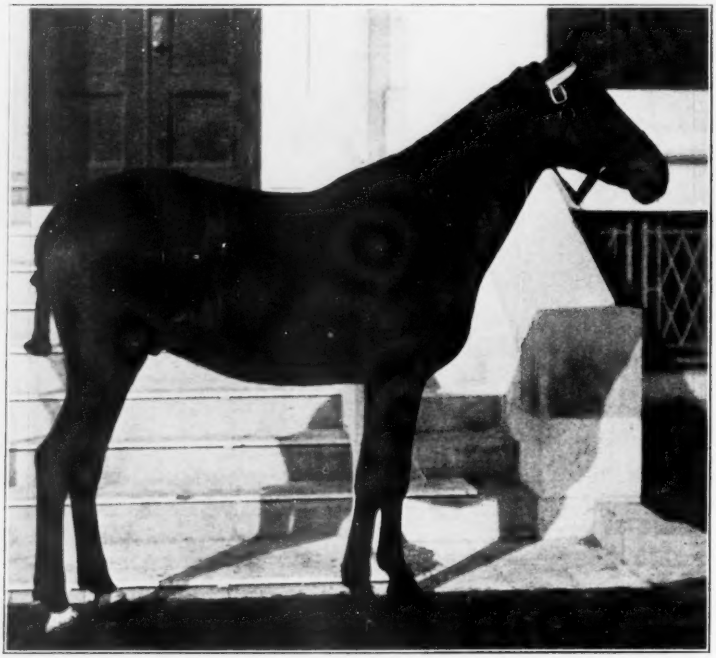
Prizes: A pair of spurs and ribbons.

Winners: 1. Major T. N. Horn's "Cæsar;" 2. Lieutenant E. J. Pike's "Red;" 3. Captain J. E. Fechet's "Rattler."

OFFICER'S CHARGERS.

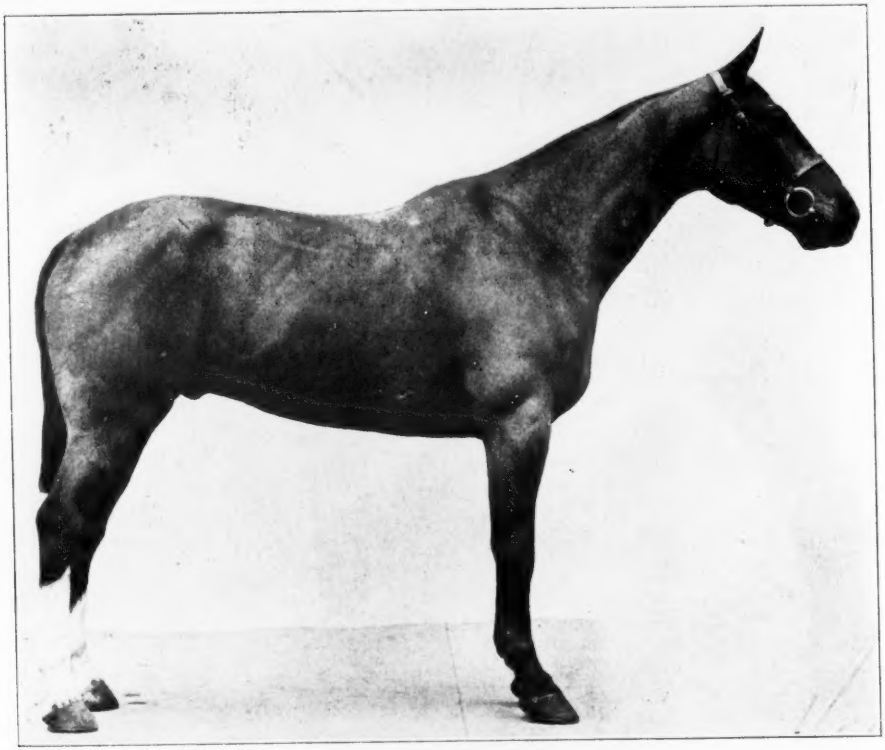
THE accompanying cut is from a photograph of a horse purchased for the Front Royal Remount Depot, by Captain C. H. Conrad, Jr., who writes regarding him as follows:

"I am sending you a photograph of 'Gamecock,' a horse now being ridden by Colonel D. S. Stanley. This horse was



GAMECOCK.

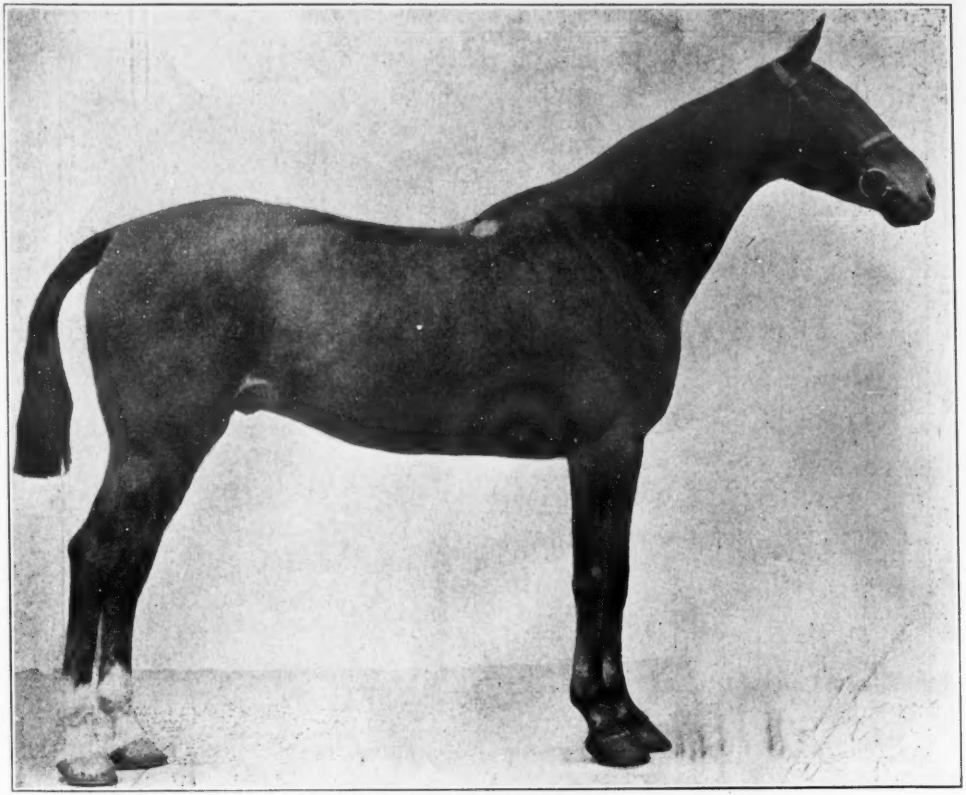
purchased by me as a three year old. He was kept at this depot for about six months and sent to Washington for use as a mount for an officer. I have a number of colts at this place that will in time make the same kind of horse. In conformation he is considered about as close to the type of charger as one would



SIR EDWARD.

The property of the Hon. ADAM BECK, of London, Canada.

Bay gelding; 16 hands, 1 inch high, seven years old; sired by Tupelo (Thoroughbred); dam a graded mare of hunter class; weight 1,205 pounds; girth 77 inches; bone below knee 8½ inches.



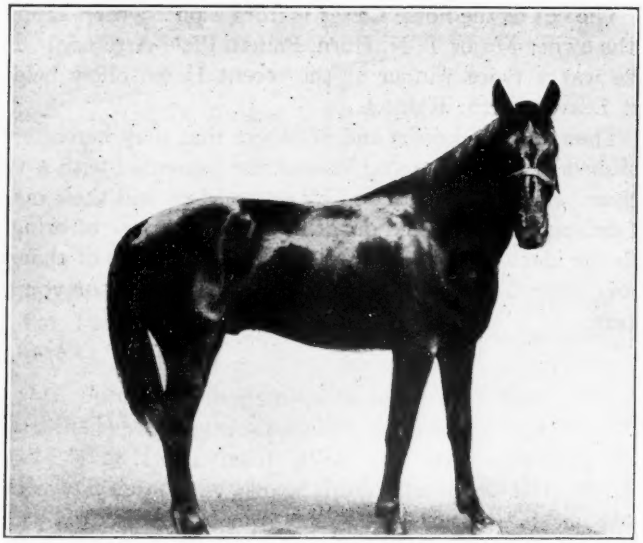
SIR THOMAS.

The property of Hon. ADAM BECK, of London, Canada.

Bay gelding; 15 hands, 3½ inches; seven years old; sired by Philosophy (Thoroughbred), out of a graded mare of hunter class; weight 1,170 pounds; girth 73 inches; bone below knee 8¼ inches.

like to have. His measurements approach about the ideal of the Austrian cavalry horse and he has been pronounced by Colonel Dorst, who served as Military Attaché at Vienna for some years, as one of the best young horses he has seen in this country.

"Please note that in 'Gamecock's picture, his tail has been tied up and the photograph taken with feet apart to show bone and hock."



CÆSAR.

Property of Major T. N. HORN, 4th Field Artillery. Black gelding; 16 hands; 7 years old; weight 1,175 pounds; thoroughbred sire, range mare dam.

"This horse will not be fully developed until six or seven years of age, but on conformation, is, at his present state of development, considered the most desirable type for military purposes."

"He should grow one-half inch more and should weigh, when mature, about eleven hundred and twenty-five pounds."

"He rides and drives and jumps nicely over four feet and has jumped five feet. He was hunted as a three year old."

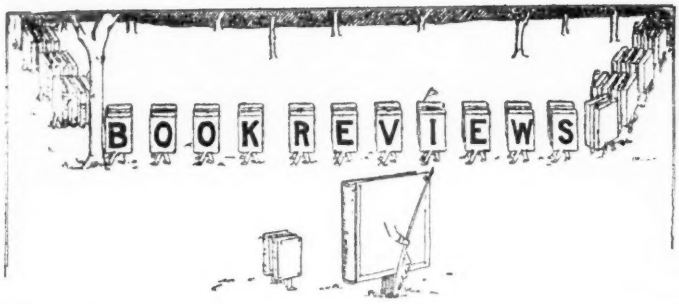
The following is the breeding and description of the horse:

By "Semper Ego," thoroughbred, out of a standard bred mare; age, five and one-half years; height fifteen hands and three and one-half inches; weight ,1,060 pounds; girth seventy-two inches.

The two cuts of Canadian horses—Sir Edward and Sir Thomas—are from photographs furnished by Major H. T. Allen, General Staff, who considers these two horses as good types of chargers.

The cut of the horse Cæsar is from a photograph supplied by the owner Major T. N. Horn, Fourth Field Artillery. This horse was a twice winner at the recent Horse Show held at Fort Leavenworth, Kansas.

These cuts of horses and of others that may hereafter be published in the CAVALRY JOURNAL are presented with a view of their being freely criticised by our readers and their merits and defects being pointed out, this for the purpose of bringing forth the ideas of our horsemen as to the best type of chargers for our officers and as a matter of instruction for our younger officers.



What Horse For The Cavalry *

This work is written by a patriotic American who writes solely because he is patriotic and a horse-lover and not because he needs the money.

Mr. Borden, in company with some of us, does not highly regard the type of horse set as our standard by General Orders No. 27, War Department, 1911, and argues strongly for a smaller and more handy horse that requires less care; one that can endure more hardships and is more docile—less subject to nerves

He finds this animal in the Arab and half bred Arab, which forms a strong strain in the great governmental studs of European countries, and thinks such an animal should be not over fifteen hands high and well bred.

Accordingly the author regards the thoroughbred as the peer of all others for the one purpose for which he is bred—racing; and the Irish hunter as the finest animal for cross-country racing

Both of these types need their own environment and being

*"WHAT HORSE FOR THE CAVALRY." By Spencer Borden. J. H. Franklin Co., Fall River, Mass. 1912.

specialists in their line are not at all suitable for all around purposes; neither do they stand well under climatic hardship.

"The horse to win races is one thing. The horse for cavalry use, * * * is quite another thing.

The author gives the following quotation from one of the best veterinarians of the German army:

"The Prussian Government, after long efforts, has succeeded in improving its army horses; it has put some blood into them, even too much blood. * * * If it is true that the German cavalry horses have blood which gives them speed, it is recognized also in these days that they easily get leg-weary, that they are prone to sore backs, that they are delicate and require careful looking after to keep them in health, besides which they demand a lot of strong feeding.

"Also, after the great maneuvers, when these Prussian cavalry horses are fatigued, thin and sore, the regiments are compelled to come back to their garrisons by short journeys, *leading their horses by the heads.*"

The author with unexampled facilities at his disposal, has looked over the great studs of nearly all countries and put together the latest statistics about the cavalry horse. We owe him a debt of gratitude for the information he has made available for us. Every horse-lover will find it a joy to look at the magnificent animals so beautifully represented in the numerous illustrations of this book. It would be worth having even though one could not read. X.

Troops on Riot Duty.* This work contains a complete discussion of the use of troops, both regular and militia, in time of civil disorder.

The tactical use of troops in the various situations that arise, in riot duty, is dealt with; general principles are prescribed and while endeavoring to avoid normal formations, such for-

*"TROOPS ON RIOT DUTY." By Captain Richard Stockton, Second Infantry, N. G., N. J., and First Lieutenant Sackett M. Dickenson, Second Infantry, N. G., N. J. Four inches by five and one-quarter inches. Price, seventy-five cents. The Military Publishing Co., Trenton, N. J.

mations are believed to be adapted to secure the best results in certain circumstances are stated. A defect exists in that the use of the bayonet is suggested against mobs, apparently against the better judgment of the authors; and also that firing at mobs, through intervals in an advance line, by a reserve force is recommended.

The legal phase of martial law, the duties, rights, and immunities of troops in this peculiar status of society, are carefully gone into and this part of the work contains much that is of value both to the regular and militia establishments.

The work closes with an appendix in which important army regulations, articles of war, and cases, in reference to martial law as well as forms of orders or proclamations, best adapted to circumstances arising in time of civil disorder, are set forth. L. H.

Fire Problems.* This little book of eighty pages is of great interest to those studying or practicing field firing of small arms. The necessity of proper fire control and direction is accentuated throughout these studies.

"A good commander," says the author, "with a good shooting company, will always beat a similar commander with an indifferent company; but do not give your choke-bore to a tyro. * * * It will be seen that in the following problems, if five per cent. of the results depend upon whether the unit is an average one or an excellent one at range shooting, ninety-five per cent. depends on the action of the fire-unit commander; and so it is also on service. *Accurate shooting does not redeem, but only accentuates the effect of unsound orders.* Under the word 'fire-unit commander,' I include all ranks from a battalion commander to a lance corporal."

These problems are fired in India. It would be difficult to find suitable ranges for some of them in the United States,

*"FIRE PROBLEMS." By Major General T. D. Pilcher, C. B. (Twenty-five Fire Problems with numerous outline sketches). Hugh Rees, Ltd. London. 1912. Price, 1s. 6d. net.

but many can be worked as map problems. Their theoretical solution could then be compared with the results obtained by actual firing and the lessons to be taught thus more forcibly impressed on the mind of the student.

The problems involved forces from two men up to a brigade of infantry and a battery. They include four situations for machine guns and one for night firing. The necessity of good ranging is dwelt upon throughout. "Too much stress cannot be laid on the necessity of teaching all men to be good judges of distances and it is wonderful how much they will improve by constant practice in this subject," writes General Pilcher. "Reliable and accurate mechanical range finders should be in the possession of every company, but complicated instruments have a way of getting out of order on active service, even if the nerves of the men working them are sufficiently calm to do the instrument justice, and besides the range finder often happens to be with the portion of the comapny which is not on the spot. *The range finders which a man always has with him are his eye and his rifle, and on these he must be taught to rely principally.*"

Does our average officer appreciate enough the impotance of visual training?

P. E. P.

Editor's Table.

A MOBILE ARMY.

We all realize that our country urgently needs a larger, more economical and more efficient army. One of the first considerations in bringing this about is unity of thought and action in the army itself. So long as an officer's relative rank and pay depend on the relative proportion of his particular arm to the other arms, just so long will selfish interest, consciously or unconsciously, be to a great extent the basis of the argument he will find springing up in his mind as good and true reasons why his own branch should be increased and the other branches held stationary or decreased.

When an officer's official rating can be independent of the strength of his arm relative to the other arms, then will the bitterness of the argument about the relative needs of the various arms entirely vanish and the discussion become academic and limited to an attempt to clarify our minds so that the best decision may be reached in the matter. Even then errors may be made, but the decision will be based on the best opinion of the united minds of our officers.

When our officers can unite on a plan for the best organization of our army, based on both military and political conditions, Congress will give such an organization to us, and the individual members of Congress will be truly thankful for the cessation of the importunities that are made to them in behalf of one branch or another.

As a practical measure for securing this unity of thought and action of all the arms, the "One List for Promotion" bill,

devised by a group of infantry officers of ability and patriotism and embraced by a large number of officers of the other branches as soon as it was understood, seems to have died a natural death, the Infantry Association and the officers of that arm as a whole having failed to indorse it. The Infantry Association, representing the arm which is numerically nearly as strong in officers as all the other arms combined and representing the arm in which this scheme originated, seemed to be the one to take the lead in this matter. As it has not indorsed the measure, no other arm as a whole has done so and it appears to be dead.

The JOURNAL of the U. S. Cavalry Association has studiously avoided any criticism or attack on any other arm and it is a source of regret to this JOURNAL that our friends in the Infantry should have taken exception to the editorials in our last issue.

A strong argument for the increase instead of the decrease of our cavalry was entirely omitted from those editorials because representative infantry officers stated that the officers of our sister arm found that argument objectionable to them.

We would like to make one more attempt to find a basis on which all arms could unite, thus removing the bitterness that now exists and that must exist if every attempt to increase one arm is necessarily a move that adversely affects the officers of all other arms.

We honestly believe all the arguments that have been advanced for an increase of our cavalry. Also, we can see that an increase of the cavalry would relatively adversely affect the officers of the other arms.

A basis of possible union of interest has, in conversation, been suggested by several officers, representing all branches, viz:

The acceptance of the principle that the increase or decrease of the number of officers in any arm shall be borne by all the arms, in all grades, share and share alike, officers thus transferred to another branch to rank in the branch to which transferred as they would have ranked therein had they been originally commissioned in the branch to which transferred.

With such a principle publically accepted, we can go before Congress with clean hands, represent the army's needs a

a whole, and state the arguments for the relative proportions of the various arms. Congress then, not having to look out to checkmate selfish interest, can intelligently decide on a military policy and we can leave the responsibility for that decision entirely on those who make it, and cheerfully devote our thought to making out of the forces allowed the best engine of war that the conditions permit.

Will our sister arms agree to publically announce their acceptance of this principle?

COUNCIL OF NATIONAL DEFENSE.

The recent action relative to the reduction of cavalry for economy's sake, or for political ends, forcibly brings up the danger of piece-meal legislation. The advantages to the service and therefore to the country at large in having a well-balanced army properly organized and located would be seen in far greater efficiency and economy.

At the present time there are vital army measures pending in Congress that are opposed by the President and the War Department; the service hasn't yet fully harmonized all its larger differences; and the well-rounded army plan of the General Staff has not yet been completed. Under these conditions the importance of a Council of National Defense should appeal to all elements of the Army. Such a council would safe-guard the interests of the whole service and of each separate branch, and if that measure could be enacted now, the service could well dispense with all other proposed army legislation at this sesion of Congress.

In any consideration of a well-balanced army in reference to war readiness the first line must receive first consideration and this by statute is the Regular Army and the Organized Militia. We believe that to give this first line the solidarity that war preparedness demands, the ratio of regulars of all branches should be increased. However, in any combination that may be worked out, based on the law and existing organiza-

tions, it is clear that a decided deficiency in cavalry and other auxiliary troops exists. In any war on this continent cavalry would be the first arm needed and it should be prepared to strike hard and without delay. The quantity of organized militia cavalry is not only small but a considerable number borne on the rolls are ineffective. Rightly or wrongly, many of the States feel that the maintenance of the more expensive and difficult branches like field artillery and cavalry should be by the Federal Government. These branches are unquestionably expensive, but they are none the less essential. Therefore, in peace, measures should be taken to assure ample auxiliary troops, not only for the first line but a quota for the second. There is in fact, no branch of the regular mobile army adequate to the requirements of the country, and a reduction of any one would be prejudicial to the interests of the whole and suggestive of similar treatment of other branches. This leads back to the original subject, the Council of National Defense, upon which the final responsibility for our naval and military policies, including the ratio of regulars to each other and to the organized militia and volunteers should fall.

The proposed organization of this council is as follows: Secretaries of Army and Navy, Chairmen of the Committees on Appropriations and on Military Affairs of both Senate and House, Chief of Staff of the Army, the Aid for the Operations of the Fleet of the Navy, and Heads of the War and Navy Colleges. This bill has received formal approval by the President, the Secretary of War, the Secretary of the Navy and various distinguished officers of both departments.

Energy expended in bringing into existence this council of eminent men would be efforts directed towards the betterment of all branches in the broadest sense and would eventuate to the general welfare of the counrty. Once a well-defined military policy were outlined, regardless of the length of time involved in its accomplishment, all officers could and should support it.

THE REMOUNT PROBLEM.

We have been impressed of late with the seriousness with which the decrease in breeding of light horses is regarded by experts when considered from the viewpoint of its ultimate effect upon the available supply of remounts.

Besides we have been reliably informed that even now the Quartermaster's Department is encountering real difficulty in obtaining the remounts necessary to supply peace time casualties which do not exceed 2,400 horses per annum. In this connection we are told that, owing to the vast multitude of poor breeding stock in this country, it is difficult to obtain anything at all approximating to our needs for cavalry service at reasonable prices.

If this be true, and we have no reason for doubting it, it is our patriotic duty to enquire into the causes and seek a remedy for this condition. The wireless telegraph, the aeroplane and the dirigible balloon have come to stay and all must be considered as the factors in future wars. They all increase the importance of cavalry, whether it be acting as a large mounted reserve on the battlefield or supplementing the reconnaissance and patrol duty of the aerial scouts. Cavalry has always been of the greatest importance to our army; today it is more than ever indispensable.

Thoughtful statesmen have but to study the losses in horses in previous wars to see that some means must be sought for assuring supplies of horses in time of war, not depending on neighbors who might be unable or unwilling to meet the need in case of a sudden declaration of hostilitites. In as small a war as that in South Africa, Great Britain required over 300,000 remounts in the first six months.

It is not an easy matter to obtain any exact data on which to estimate our present supply but we do know that it is only common sense that if we are having difficulty in obtaining 2,400 horses per year, that it would be no easy matter to secure one hundred times that many in a few months. We can probably make a close estimate from comparison with Great Britain.

In a recent census Great Britain found about 3,000,000 horses in the United Kingdom but only 17,000 of these were reported "*suitable for military purposes.*" At the same proportion, our total supply today would be about 130,000 for field artillery and remounts. It is not hard to realize that many of these horses are hunters and fancy riding and driving horses and would be valued by their owners at almost prohibitive prices. If we were to have a war under present conditions we would be obliged to mount most of our cavalry on the big-footed, big-headed, soft-boned type of horse with which we are all familiar or else resort to draft animals. Either method would be worse than unsatisfactory and besides it would prove very expensive since the useful life of such animals would probably not exceed four months of field service.

What are the conditions that exist at present which are causing such a flurry on the subject of remounts?

(*a*) Within the past few years many of the states have actively discouraged racing so that many of our principle paddocks have been broken up and their contents scattered over the entire world.

Mr. Pond, in the February number of *Bit & Spur* states, "During the past two years, it is estimated that about two and one-half million dollars worth of high class thoroughbred stock has been driven out of the United States owing to the cessation of racing. * * * The riding horse is really becoming scarce and, since racing has been discouraged in many of the states, the number of stallions available for breeding suitable remounts has been decreased until the finer blooded animals are becoming extinct."

Some advise the Government to encourage racing to repair the harm which has been done but it would probably require at least a quarter of a century to regain what has been lost. Besides considerable time will be needed in which to educate public opinion to the desirability of such action.

(*b*) Another cause is the falling off in the demand for lighter types owing to various influences among which we might mention bicycles, automobiles, trolley lines, the breaking up of large ranches in the west into smaller farms, fencing in pasture lands, etc.

While the first cause (*a*) mentioned is seriously effecting us by decreasing the number of blooded stallions suitable for breeding remounts, the latter influences (*b*) are destroying the market for the very class of horses which we must have for cavalry use. In this connection attention is invited to the tables prepared by George M. Rommel and appearing in the JOURNAL for November, 1911, pages 422 to 427.

It would appear that something radical must be done to create a demand for such horses or breeders will stop raising them.

The Quartermaster's Department has already taken a step in this direction by experimenting with remount stations. In fact the remount station at Fort Reno has passed the experimental stage. It is a success. The idea is, and it is a sound one, that the Government should procure its remounts from the three year olds and keep them until mature before issuing them to the service. The better grades of colts are either worked too hard by the farmers after becoming three years old or else they become so valuable from handling that they are not in the market for prices which the Government is willing to pay.

The Agricultural Department has a plan whereby it hopes to obtain about 2,400 remounts per year. This plan is probably familiar to all our readers but in brief it embraces the distribution of 100 stallions of varying types among the more prominent horse breeding localities. The Government to give free service to mares and in return to have the option on the three year old colts. The scheme is very good so far as it goes, provided the Government will pay enough to make the venture advantageous to the breeder. The present price of $150 does not appear to us sufficiently high unless the Government contemplates buying practically all the colts. It costs more than $100 to raise a colt to a three year old and many of the culls would bring but little in the market.

We believe, however, that nothing better offers at present than a combination of system of remount depots with the free service plan just referred to.

Such a plan involves a considerable outlay of money on the part of the Government but it should be the means of building

up an enormous industry which would provide us with a large reserve supply of remounts and, at the same time, enrich the nation out of all proportion to the expenditure.

There are today more than 23,000,000 horses in the United States and less than one per cent. of them are pure breds and only about one-fifth of these are light horses. A large portion of the remaining ninety-nine per cent. are mongrels of the poorest type. What an enormous power it would give us over the horse market of the world, if we could eventually practically eliminate the mongrels! The expense of raising and keeping the well bred animals would be the same as that for the mongrels while their increased market value would pay the expenses of sustaining at war strength a really efficient force of cavalry.

A CHIEF OF CAVALRY.

In the January, 1912, number of the CAVALRY JOURNAL—page 786—an unfortunate typographical error, that should have been detected by the proof reader, gave our friend, the Editor of the *Infantry Journal* an opportunity to comment upon the same as follows:

"Our estemed contemporary, THE JOURNAL of the United States Cavalry Association, prints in its last issue certain decisions and recommendations of the Cavalry Branch Association at West Point, which are excellent in tone and spirit. They include, however, according to our contemporary's text, the rather remarkable recommendation:

> "That every effort should be made to secure a permanent Chief of Staff with rank commensurate with the importance of his position and whose prominent duty should be to secure for the cavalry service the recognition it deserves in any general reorganization scheme, etc., etc.

"Which seems to be a sufficiently ambitious program to satisfy even the most radical."

Even a most casual reading of the entire paragraph from which the above extract is taken shows that reference was

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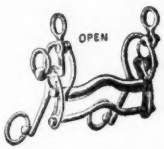

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Cannot give horse sore back.

If they have a sore back it is the only saddle which can be comfortably worn.

They place the weight of the rider slightly more forward than the old style of saddle; a great advantage for race riding.

A tall man can ride with his stirrups EXTREMELY short without having his knees right off the saddle, as this saddle is cut more forward than the old style.

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It is exceptionally nice to ride jumping in, also for backing horses for first time as stirrups can be dispensed with.

They cannot go down on to a horse's withers.

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made to a "*Chief of Cavalry*" and not to a "*Chief of Staff*" and that this was a typographical mistake, pure and simple.

However, the above is but preliminary to calling attention again to this recommendation made by the West Point Branch and reiterated by one of the other Branch Associations. Some two years and more ago, this important topic was discussed over and over again in the CAVALRY JOURNAL and all the arguments for this proposition, there are none against it, were fully set forth but the matter was unhappily allowed to be dropped.

Of course, it will be almost impossible to obtain any legislation on this subject at this session of Congress unless there may be a mere chance that the proposed scheme of reorganization, prepared by the General Staff, contains such a proposition and it should be accepted and adopted as a compromise measure for the general legislation tacked on to the army appropriation bill, known as the Hay amendments. If that scheme does not include a chief for each of the branches of the mobile army, our friends in Washington, of all arms, should use their best efforts to have such a proposition included.

The chances are, however, that no general reorganization scheme will be adopted at this session of Congress and it would be well for us to lay our plans for the campaign for obtaining a *Chief of Cavalry* at the next session. Let each of our branch Associations discuss this subject fully, giving every possible argument in favor of having such an official and the best plan of operation for obtaining one. Then send these conclusions to our Executive Council to be digested and acted upon. Only by some such consecrated action will we ever get this much desired legislation. Still it is believed that it should be included in the general reorganization scheme prepared by the General Staff.

CAVALRY.*

A new work with the above title has just been received. It is in the original French and by Captain Loir and with a preface by General Langlois, the well known writer and authority of the French Army.

The following extracts from a translation of the preface by General Langlois will be of interest to our cavalrymen, especially at this time when it has been proposed to reduce our cavalry by one-third:

"* * * You have addressed yourself to the younger comrades of your arm who wish to get a general view of the operations of cavalry as well as of the various missions that can be entrusted to it; your object has been to show them how 'a tactical situation is handled.'

"Permit me to say that you are too modest. Your book will be one of the most useful to the field officers likely to command troops of all arms. Frequently, if the cavalry does not render all the service that is to be expected of it, it is because the commanding general, through not knowing its scope of action, does not know how to give a mission clear, specific and feasible. After having read carefully the pages that you have written, after having thought them over, every officer commanding a mixed force (force of all arms) will be in a position to make suitable use of the squadrons under his command, to exact nothing of them that they are unable to carry out, to demand of them all that they can give. All field officers, as well as those likely to become field officers will find your book a valuable guide.

"I shall say even that you should aspire higher and that your book will be of use even to our cavalry commanders. I take an example in order to make myself understood. In a large number of our maneuvers, we see confided to our cavalry the

*"Cavalerie. Procédés Technique; La Cavalerie dans L'enemble de L'Armée; La Cavalerie dans la Bataille." By Captain Loir, État-Major du XXe Corps D'Armèe. With a preface by General Langlois, formerly a member of the Superior Council of War and member of the French Academy.

task of retarding columns of hostile infantry on the march; often, too often, this task is poorly executed. Those who will apply your principles, after having read the short study which you devote to the delaying action of cavalry and which you base upon a concrete case, will avoid committing these errors that we witness every year. Moreover, these principles are the very same that General Février put forth so masterfully when he was making his special role of the cavalry studied.

"Finally, in the higher commands, all the commanders have not had the opportunity during their careers, to handle cavalry and the orders that they give to it bear the evidence of this gap in their military instruction. The chapters in which you treat of the role of your arm *before during* and *after* the *battle* will enlighten them and will exert a salutary influence.

* * * * * * *

"I reproach you, however, for having taken all of your examples from the operations of the German cavalry in 1870–71. Perhaps you have feared that, in going as far back as the exploits of our cavalry of the first empire, it would be said that all is changed since then. This is a mistake, for man is always the same, and demoralized infantry, whatever be the rifle with which it is armed, has always been and will always be a prey for active cavalry. You have feared this criticism; it is a pity, for there was in the Murats, the Lasalles, etc., a keenness that the Germans of 1870 never had.

* * * * * * *

"Making an arm of your alert pen, you charge like a true cavalryman upon certain doctrines promulgated, after recent campaigns, as a result of a false interpretation of events or of preconceived ideas. You crystallize the ideas about fighting on foot. You rise strongly against that school 'which has held that cavalry combat is only a passage of arms of a former age.' History in hand, you prove that the improvement in armament, far from restricting the role of cavalry in modern warfare, on the contrary gives your arm an importance entirely new, and you are a thousand times right. If I desired to express my ideas in this regard, I should say that each

nation should have as much cavalry as is permitted on the one hand by their financial resources of the country and on the other by its horse population; never will one have too much cavalry.

"Evidently you have recapitulated the lessons of your masters, as you have told me, of General Bourdériat whose teachings you have followed, and of General de Chabot under whose orders you have had the good fortune to be. You have supported yourself by the precepts of many other noted military men whom you have frequently cited: De Brack, Ardant du Pie, de Galiffet, de Conitet, Cardot, Tremaue, Geslin de Bourgogne, etc., etc., you could not select better models and you have interpreted their teachings like a true cavalryman, fond of his arm, animated by an ardent faith and your conviction is essentially communicable. 'At the enemy, without counting his ranks,' you have said. That is your directing principle. Thus, in closing your book, one seems to be ready to charge, saber in hand at the enemy!"

BRANCH ASSOCIATIONS.

The agitation caused in the cavalry service by the proposition to reduce the strength of our cavalry, although an evil in itself, has brought forth good along two lines.

First, it has caused many of our young officers to realize that the Cavalry Association exists for a purpose other than that of publishing journal and has brought many of them into the fold. There is, however, room for the remaining officers that are not now members.

Second, it has had the effect of causing Branch Associations to be organized at several of the larger garrisons and regimental posts. Such Branch Associations are now formed at West Point, Washington, Fort Leavenworth and in the following regiments: Second, Third, Fifth, Ninth, Tenth, Eleventh and Thirteenth.

It is understood that the officers of the Fifteenth Cavalry at Fort Myer are members of the Washington Branch and

those of this regiment at Fort Leavenworth are members of that Branch.

The Executive Council are using their best efforts to have the other regiments take up this matter but some of them are so scattered that, at present, litt'e can be done by them in getting together on this question.

The following are the provisions of the Constitution of the U. S. Cavalry Association regarding Branch Associations:

ARTICLE VIII.

SEC. 10. It shall be the duty of the Executive Council to organize Branch Associations at posts where there are officers of the regular cavalry stationed and in each State, Territory and the District of Columbia having cavalry belonging to the organized militia, as contemplated in Article XV.

SEC. 11. The Executive Council shall also, by correspondence and otherwise, endeavor to keep active the Branch Associations. Any propositions looking to the promotion of the interests of the cavalry, signed by twenty members or by a majority of the Executive Council, shall be submitted to the Branch Associations, and to all regular members not members of Branch Associations, for an expression of opinion by means of a vote.

ARTICLE XV.

BRANCH ASSOCIATIONS.

SECTION 1. Branch Associations of the United States Cavalry Association may be organized at each station where there are cavalry officers of the regular service stationed and in each State, Territory and the District of Columbia having cavalry belonging to the organized militia.

SEC. 2. Each Branch Association shall elect a President and Secretary and such other officers as it deems necessary to successfully conduct the affairs of the Branch Association.

SEC. 3. All correspondence from the Executive Council to members belonging to Branch Associations shall be addressed through the Secretary.

SEC. 4. The Branch Association shall meet from time to time to read essays, papers, etc., and to discuss matters pertaining to the United States Cavalry Association. It shall be the duty of the Branch Associations to solicit articles for publication in the JOURNAL; to obtain proxies or the votes or opinions of members on any matter that may be brought before the Association and forward the same to the Secretary. Any proposition submitted by the Branch Association to the Executive Council looking to increased efficiency may be submitted by the Executive Council to other Branch Associations for opinion and vote.

Copies of the Constitutions of such Branch Associations as have forwarded them to the Secretary of the U. S. Cavalry Association will be furnished upon application..

THE BREEDER'S CUP.

Herewith is a cut from a photograph of the horse "Devisor" that won the Breeder's Cup, in the Charger Class, given by the U. S. Cavalry Association for the best horse of this class shown at the various Horse Shows in the Virginia Horse Show Circuit during the year 1911.

Horses were entered in this class at eleven Horse Shows which were held as follows: Richmond, Va., May 22d; Culpepper, Va., July 4th; Manassas, Va., July 26th; Orange, Va., August 2d; Front Royal, Va., August 15th; Berryville, Va., August 23d; Keswick, Va., May 16th; Washington, D. C., May 4th; Upperville, Va.; Charlottesville, Va.; and Warrenton, Va., the dates on which the last three were held not being given in the report furnished us.

The owner reports that the photograph is not of the best.

Captain Conrad writes of this horse: "I saw this colt before he was bought by Mr. Benner and was greatly pleased with him."

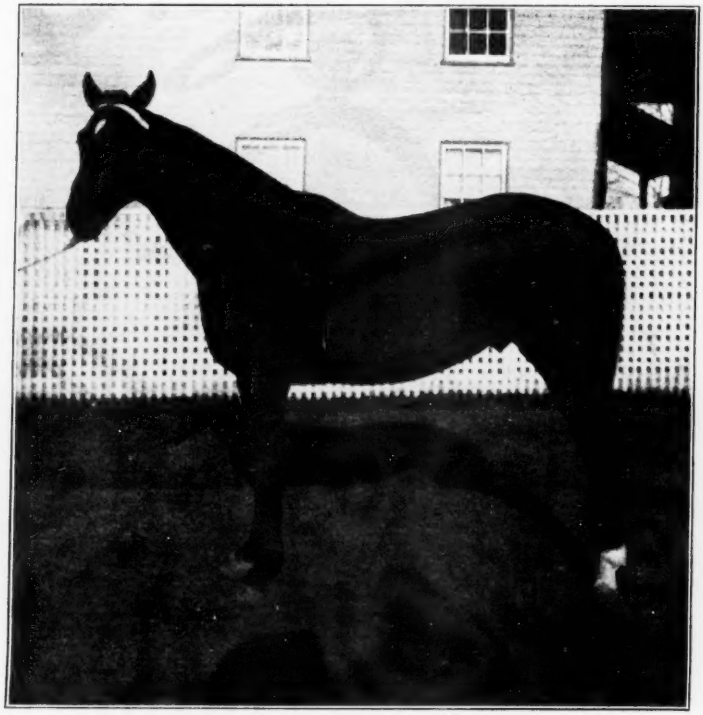
The following is his description, etc:

Name: "Devisor."

Breeding: By "Alenscot" out of "Sunlight."

Age: Four years in March, 1911.
Height: Sixteen hands and one-half inch.
Weight: Eleven hundred and fifty pounds.
Girth: Seventy-five and one-half inches.
Bone: Three inches below knee—eight and one-half inches.

This horse is Kentucky bred, registered No. 56,675; a chestnut gelding; showy but manageable. Bought as a two



DEVISOR.

Winner of the Cavalry Association Cup in Charger Class Virginia Horse Show Circuit, 1911.

year old for $1,000. For sale now, the price asked being $2,500 Is now owned by Mrs. U. D. Benner, Warrenton, Va.

The cup, to cost one hundred dollars, is being made by Black, Starr & Frost, of New York. It was expected that a cut of the same would be sent us in time for publication in this number of the CAVALRY JOURNAL.

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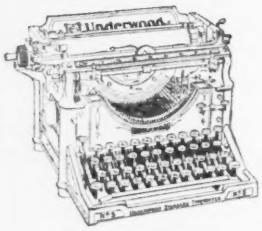

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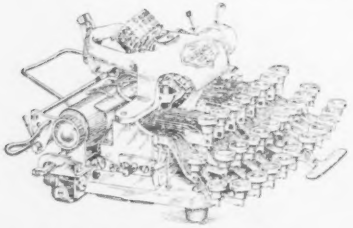

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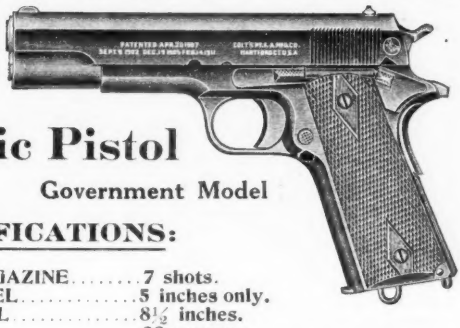

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CAPACITY OF MAGAZINE	7 shots.
LENGTH OF BARREL	5 inches only.
LENGTH OVER ALL	8½ inches.
WEIGHT	39 ounces.
FINISH	Full blued, with Checked Walnut Stocks.
CARTRIDGES:	Caliber .45 U. S. Government, 230 grain bullet.
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	(Both rimless; smokeless powder; full jacketed bullet.)

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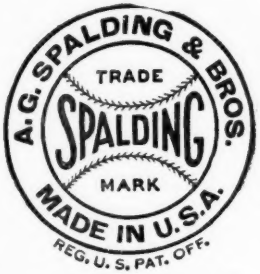

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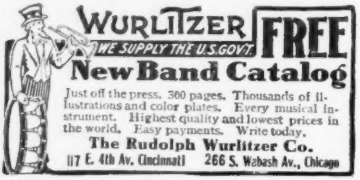
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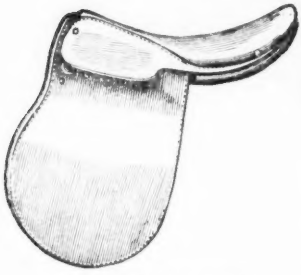

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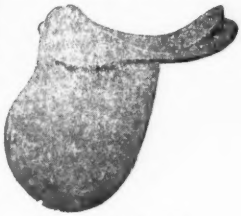

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